

**ICOIM** 2018

**International Conference  
on Oral Immunology & Oral Microbiology**

Theme:

**Oral Health for Healthy Living**

# PROCEEDINGS ICOIM 2018

Balai Ungku Aziz, Faculty of Dentistry  
*University of Malaya*

*14-15 August 2018*



Published by:  
Faculty of Dentistry,  
University of Malaya



Published by:  
Faculty of Dentistry,  
University of Malaya

Proceeding ICOIOM 2018, 14 August 2018  
©Faculty of Dentistry, University of Malaya

All right reserved. No part of this publication may be reproduced,  
stored in a retrieval system, or transmitted, in any form or by any means,  
electronic, mechanical, photocopying, recording, or otherwise, without  
any prior written permission of the publisher.

ISBN: 978-967-2128-07-8

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Printed in Malaysia by: Faculty of Dentistry, University of Malaya

In conjunction with: Malaysian Society of Oral Microbiologists and Oral Immunologists  
(MySOMOI)

Jalan Universiti 50603 Kuala Lumpur  
Wilayah Persekutuan Kuala Lumpur





International Conference on  
Oral Immunology and Oral Microbiology

Theme: Oral Health for Healthy Living

The International Conference on  
Oral Immunology & Oral Microbiology (ICOIM) 2018  
is a common platform for Physicians, Dentists, and Scientists  
who are engaged in clinical practice and/or basic research  
dealing with oral health in a broader sense.

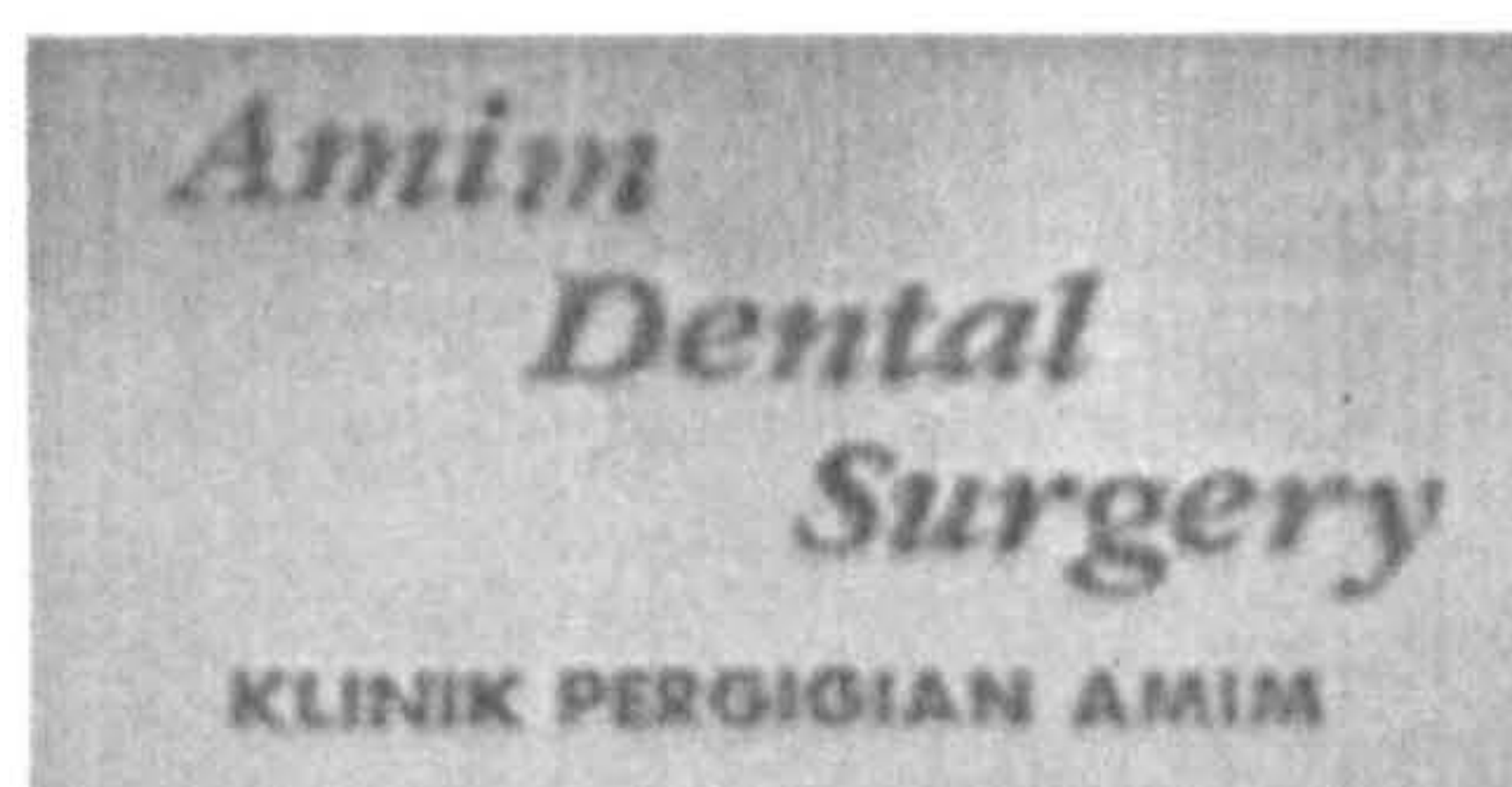
*Organized by:*







## Sponsors



Gaslink Industrial Gases Sdn Bhd  
No 27, Jalan Utama 2/36,  
Taman Perindustrian Puchong Utama,  
47100 Puchong Selangor



# Organizing Committee



## Condescendent

Prof. Dato' Dr. Zainal Ariff Abdul Rahman

## Chief Advisor

Assoc. Prof. Dr. Zamri Radzi

## Chairperson

Prof. Dr. Mohammad Tariqur Rahman

## Secretary

Assoc. Prof. Dr. Zuraiza Mohamad Zaini

## Scientific Program

Assoc. Prof. Dr. Rathna Devi Vaithilingam

## Abstract Book

Assoc. Prof. Dr. Nor Adinar Baharuddin

Pn. Nurazkiyah Binti Fadhli

## Promotion & Publicity

Assoc. Prof. Dr. Marina Mohd. Bakri

Assoc. Prof. Dr. Chen Yeng

## Treasurer

Cik Huwaida Aminurddin

Pn Norazleen Ramli

## Sponsorship

Pn. Rathiyah Ahmad (Coordinator)

Pn. Junaida @ Maimunah Binti Hassan Basari

Pn. Chanthiriga

Pn. Faraliza Alias

Pn. Siti Zaleha Awang

Pn. Azizah Abd Rahman

## Technical Committee

Pn. Intan Suhana (Coordinator)

Pn. Suzaimah Sulaiman (Registration)

Cik. Najihah binti Lokman (Protocol)

Pn Nurul Khairyah binti Abas

En. Ahmad Najmi Ariffin (Website)

En. Ahmad Azwan Azman (Website)

Cik. Nursyafiqah Abd Malek (Awards)

Pn. Norshida Abdul Manan (Food & Beverage)

Pn. Sumiati Pool (Food & Beverage)

## Opening & Closing

Pn. Helen Ng Lee Ching (Coordinator)

Pn. Siti Nurul Mardhiah

Pn. Sumiati Pool

En. Jazli Aziz

Pn. Yuen Sze Wan

## Logistics, Venue and Audiovisual

Pn. Tengku Maimunah Tg Mukhtar (Coordinator)

En. Syamsul Arief Bin Mohd Mokhtar

En. Muhammad Fairos Bin Jenal

Pn. Haspalila Md Harith

En. Salim Shah Bin Kader Batcha

En. Mohamadd Firdaus Abd Rahaman

En. Ahmad Faisal Lope Ahmad Ariffin

En. Hafiz Azizi Kumaruzaman

En. Abdull Zainol

En. Mohamed Hafizee Mohd Zukarnain

En. Izzul Arif Rosli

En. Noor Haffizal Rashid

En. Fadzrul Affandiey Hamzah

## Post-conference Workshop

Pn Helen Ng Lee Ching (Coordinator)

Pn. Zarina Bt Idris

Pn. Siti Nurul Mardhiah

Pn. Junaidah @ Maimunah Binti Hassan Basari

Pn. Intan Syaheera Abdul Hamid

Pn. Nuzaimah Ideris

En. Farid Aizat Mohamad

Pn. Nurul Khairyah Abas



## List of Chairman and Judges during oral and poster evaluation

Session	Date	Time	Chairman	Judges
Key Note Speech	14 August	09.15-10.15	Raja Azman Raja Awang	NA
Plenary Lecture		10.45-11.30	Marina Mohd Bakri	NA
Oral Presentations		11.30-13.00	Wim Teughels	Raja Azman Raja Awang Chen Yeng
Plenary Lecture		14.00-14.45	Zamirah Zainal Abidin	NA
Oral Presentations		14.45-16.00	Lakshman Samaranayake	Zamirah Zainal Abidin Maha Abdullah
Poster		16.00-16.45	Chen Yeng	Salequl Islam Syarida Safii
Plenary Lecture	15 August	08.30-09.15	Rathna Vaithilingam	NA
Oral Presentations		10.30-11.45	Maha Abdullah	Zamirah Zainal Abidin Rathna Vaithilingam
ePoster Session		11.45-12.45		NA
Oral Presentations		14.00-15.00	Hirota Kuwata	Raja Azman Raja Awang Chen Yeng
Interdisciplinary Lecture		15.00-15.45	Hirota Kuwata	NA NA
Immunology Quiz (Final)		15.45-16.30	Richard J Lamont	Tariqur Rahman NA



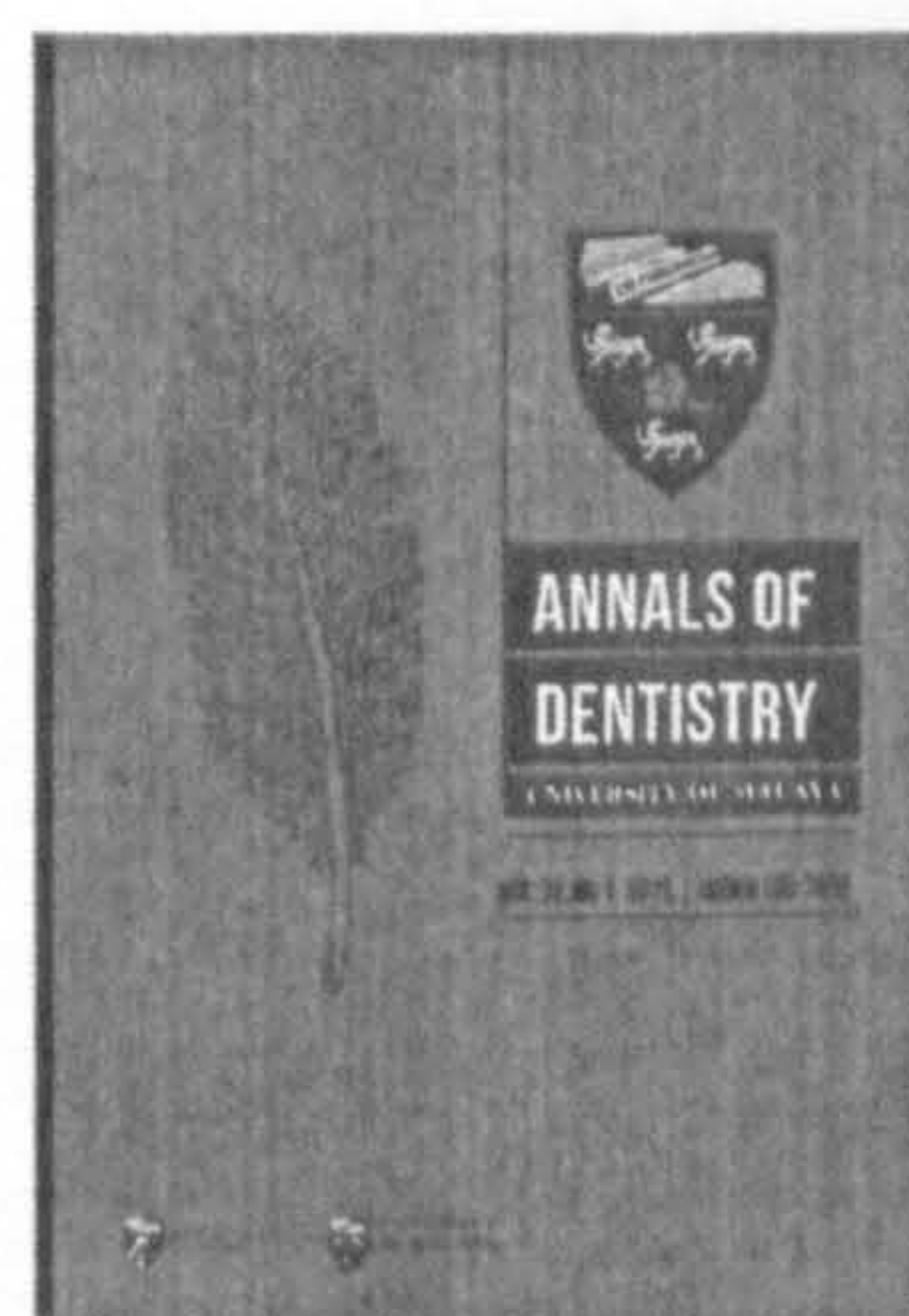
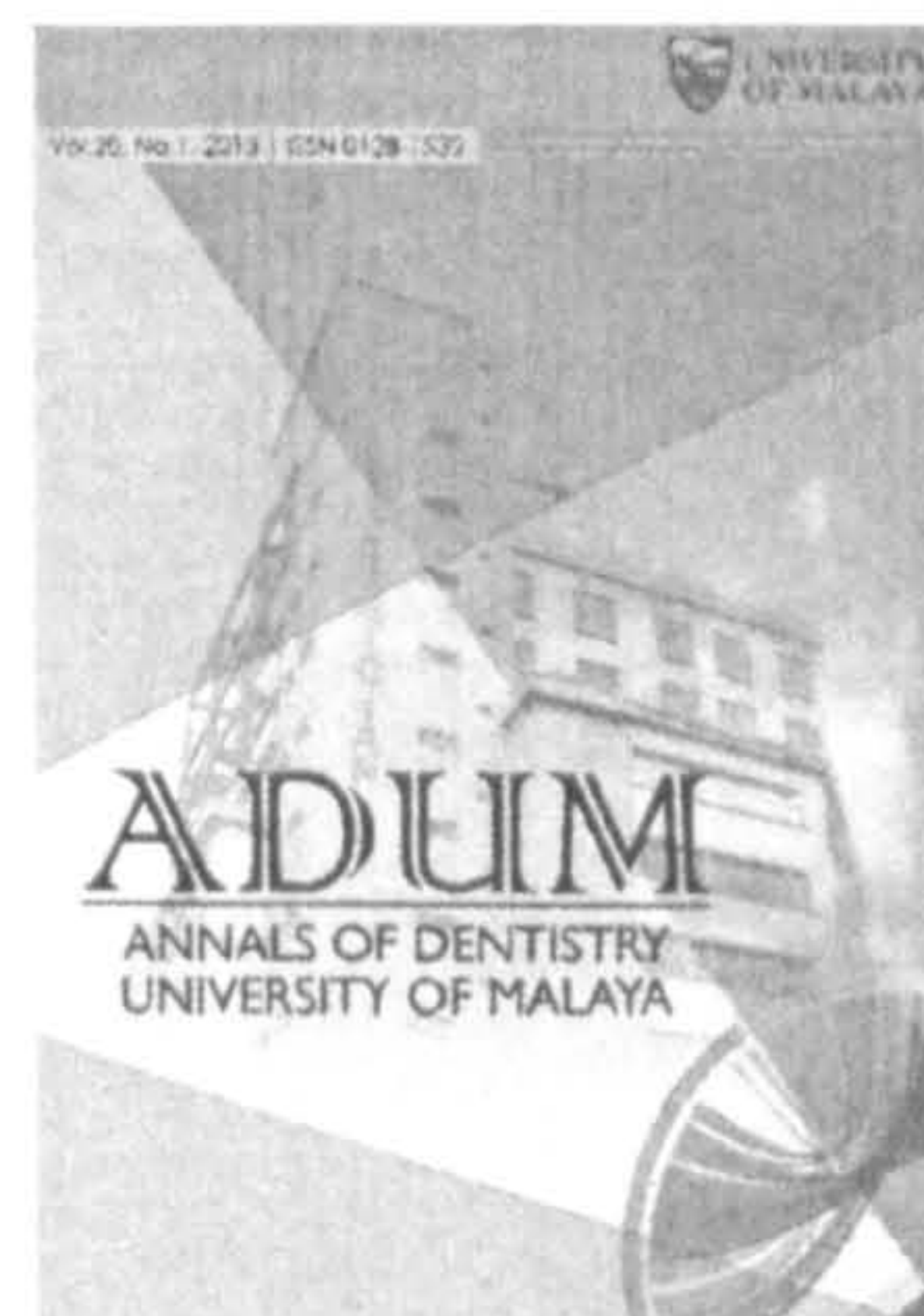
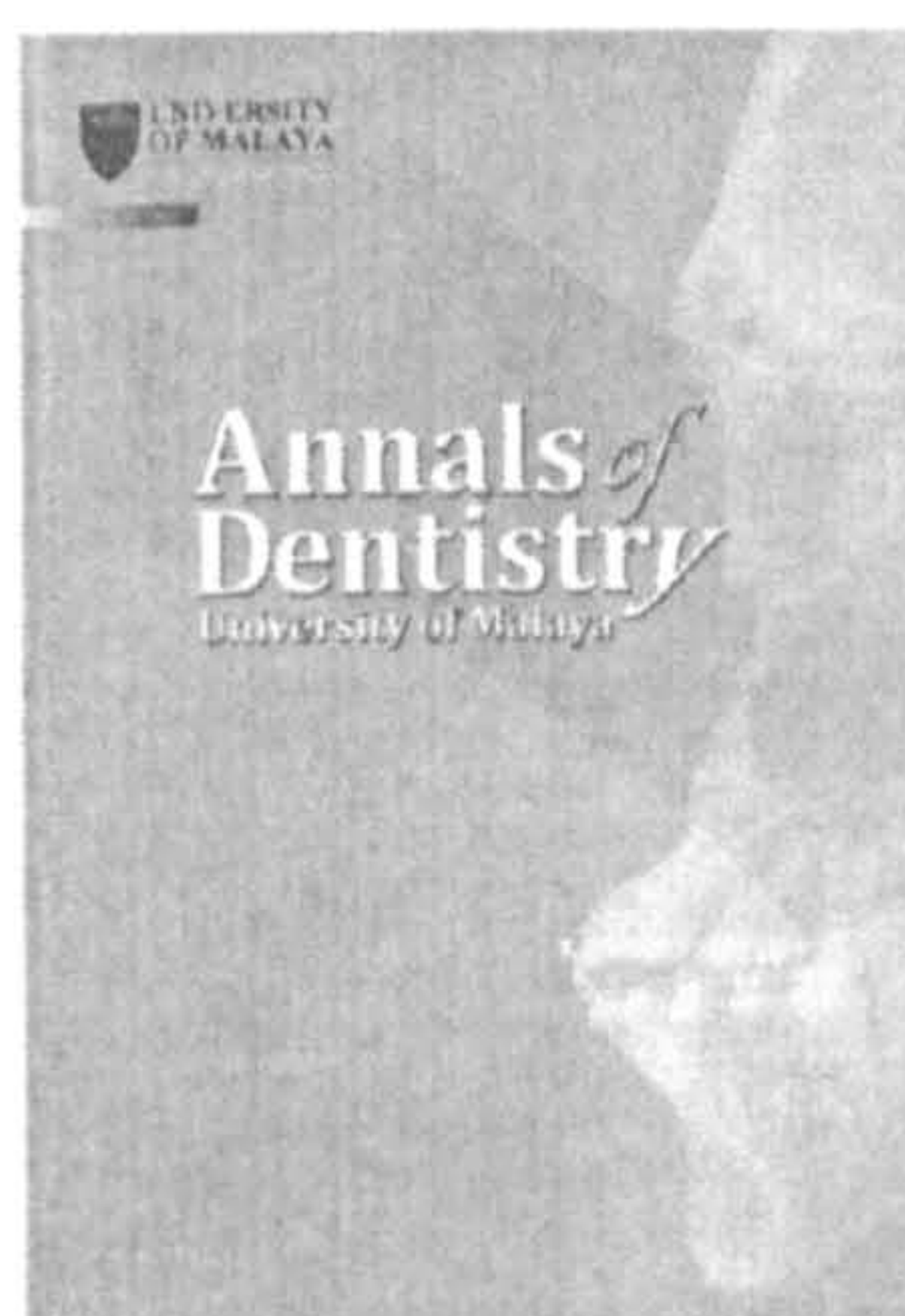
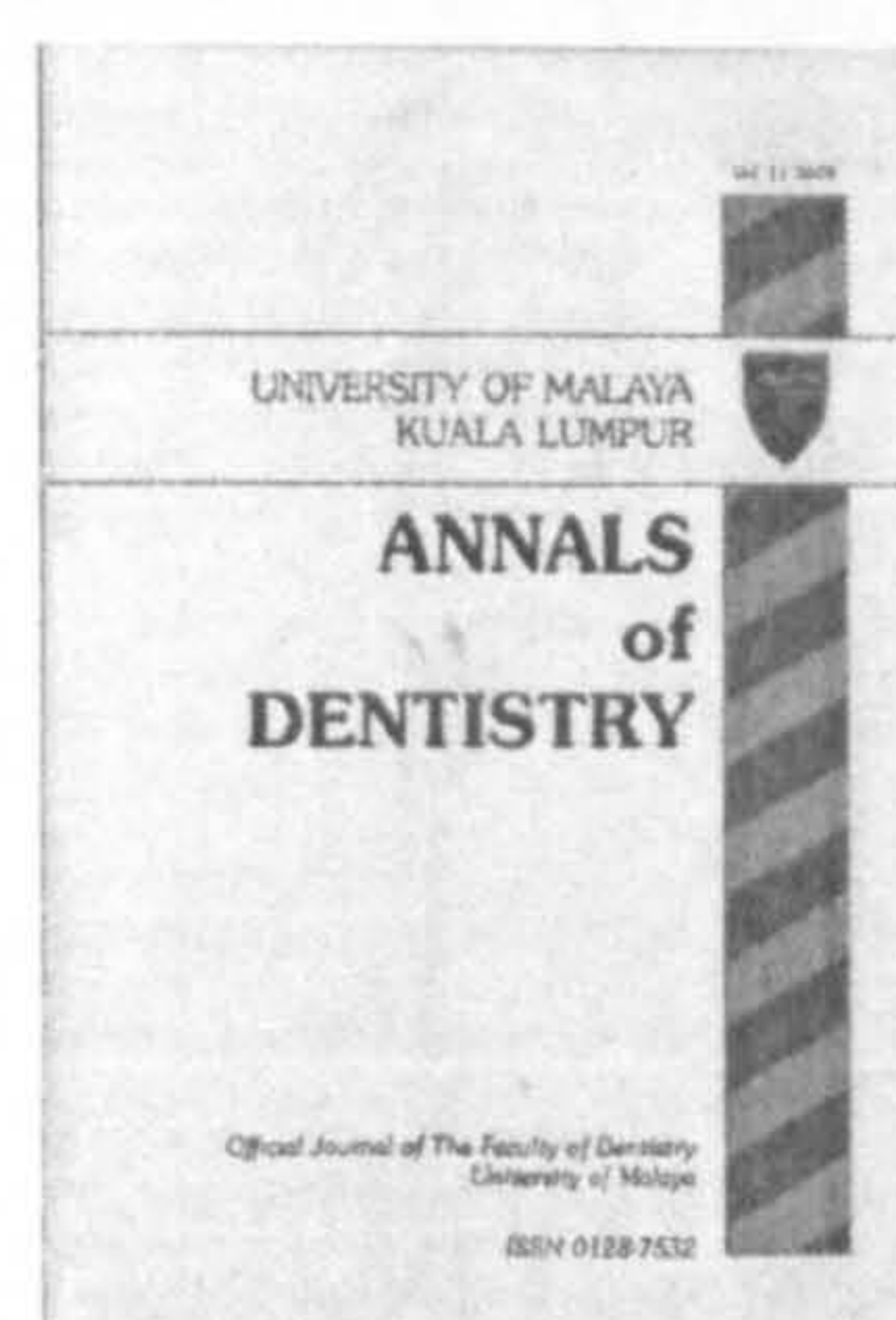
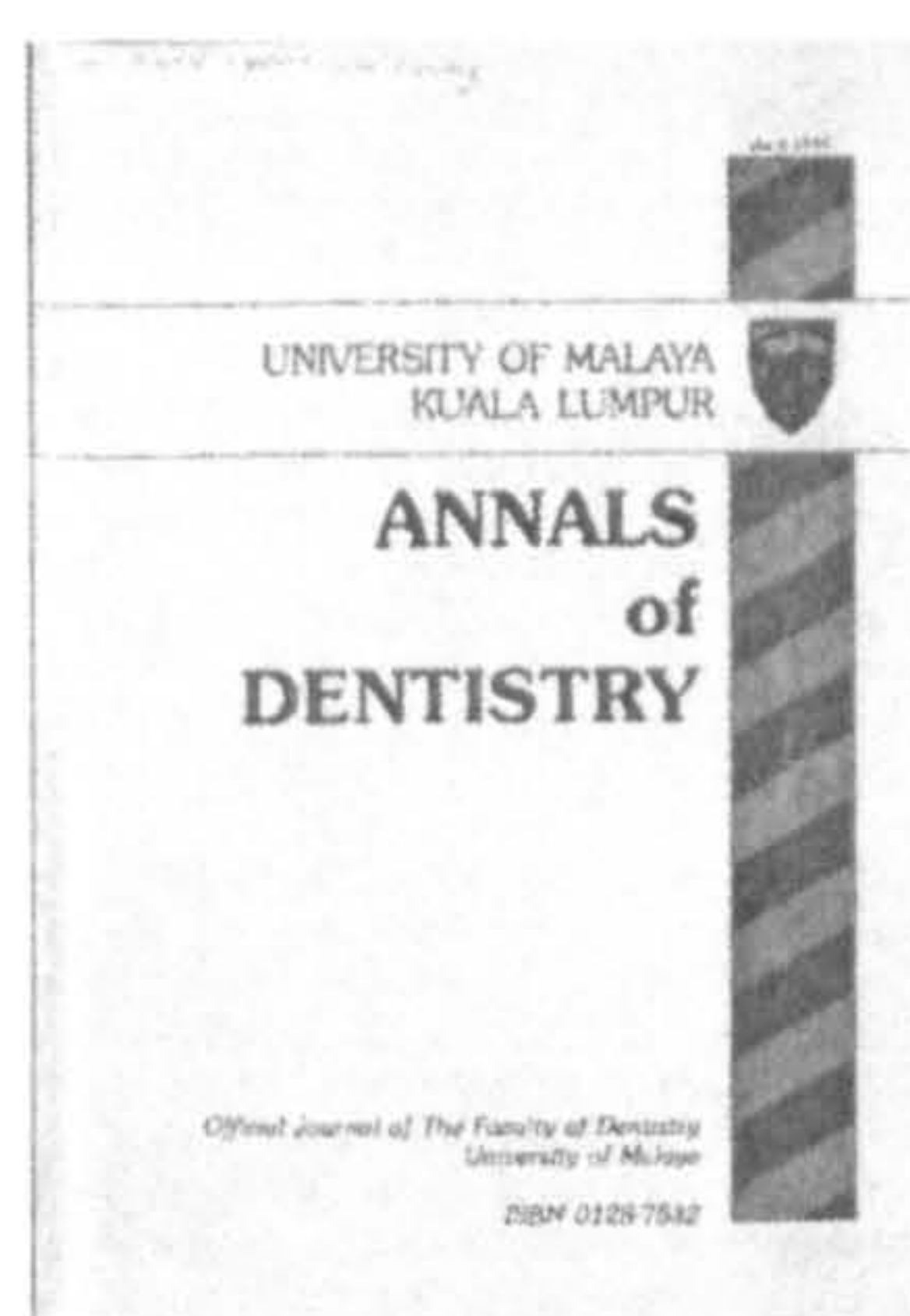
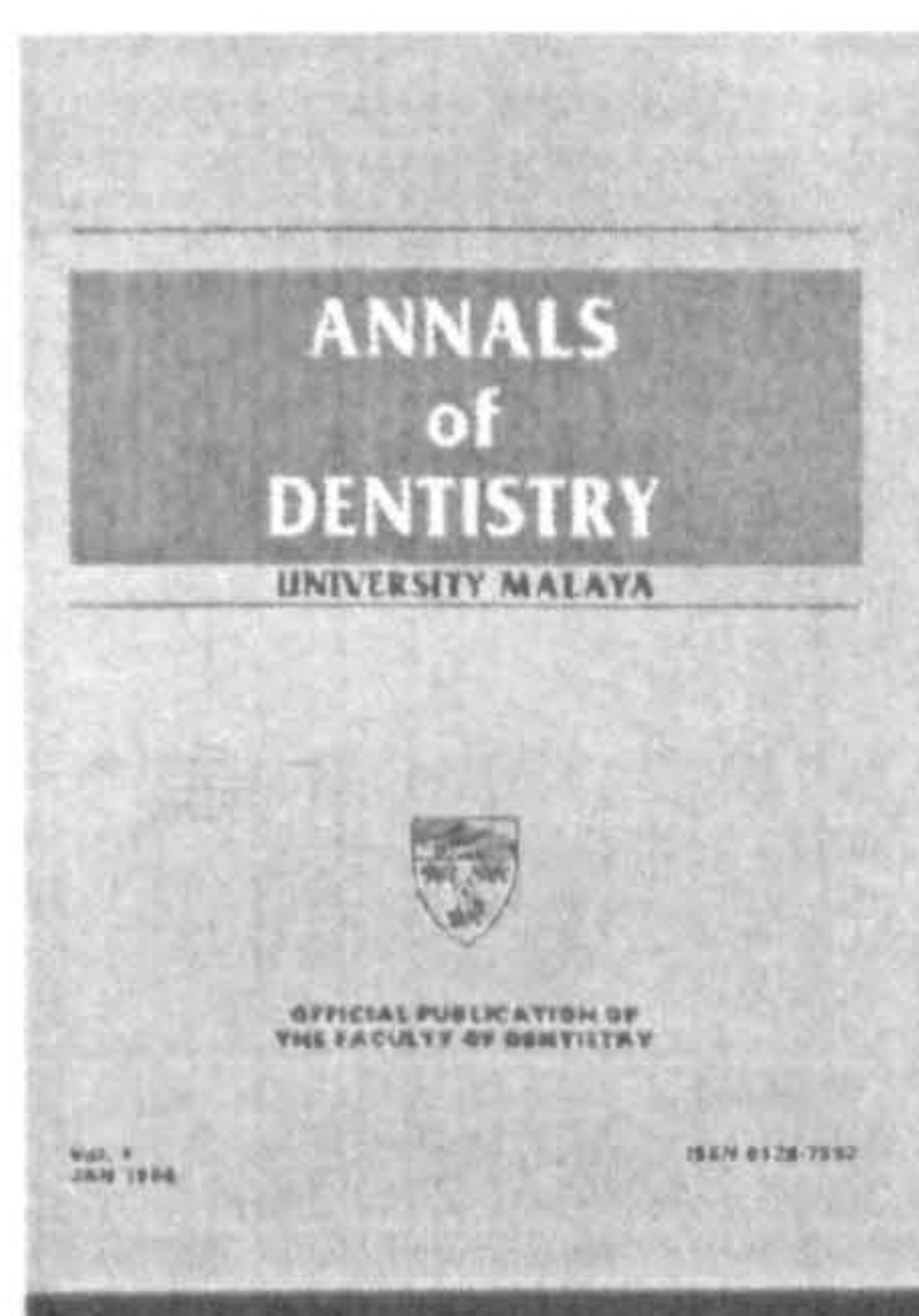
## Submit manuscript to Annals of Dentistry University of Malaya (ADUM)

ADUM is published annually as the official publication of the Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia. Since its first publication in 1994, this peer-reviewed journal strives to promote the advancement of practice, education and scientific research in Malaysia as well as elevating the quality of patient care. Original research articles, and critical reviews pertaining to dentistry and its allied fields will be considered for publication.

**Do not worry about the formatting** as long as your manuscript contains: an abstract, a short introduction, materials and methods, results and discussion and not more than 50 references.

**ADUM publishes Letters to Editor, Research Article, Perspective/Opinion papers, Case studies, and Reviews**

## Journey to the history to ADUM with the cover pages since 1994





## List of Presenters

ID	Category	Name	Institution
OR-01	Oral	Androula Kazoullis	University of Queensland
OR-02	Oral	Mohammad Arshad Aziz	University of Otago
OR-03	Oral	Lahari A. Telang	Penang International Dental College
OR-04	Oral	Ziyada Salisa	Jenderal Soedirman University
OR-05	Oral	Low Sin Yan	Universiti Tunku Abdul Rahman
OR-06	Oral	Marina Mohd Bakri	University of Malaya
OR-07	Oral	Haizal Mohd Hussaini	University of Otago
OR-08	Oral	Syarida Hasnur Safii	University of Malaya
OR-09	Oral	Intan Azura Shahdan	International Islamic University Malaysia
OR-10	Oral	Wong Gou Rean	University of Malaya
OR-11	Oral	Mohd Hafiz bin Arzmi	International Islamic University Malaysia
OR-12	Oral	Nurul Fatihah Binti Mohamed Yusoff	International Islamic University Malaysia
OR-13	Oral	Jesinda P. Kerishnan	University of Malaya
OR-14	Oral	Salequl Islam	Jahangirnagar University
OR-15	Oral	Noratikah bt Awang Hasyim	University of Malaya
OR-16	Oral	Nanda Rachmad Putra Gofur	Universitas Brawijaya
OR-17	Oral	Siti Zaleha Raduan	Universiti Malaysia Sarawak
OR-18	Oral	May Ameen Saeed Alkoshab	University of Malaya
OR-19	Oral	Kathreena Kadir	University of Malaya
OR-20	Oral	Muhammad Nazirul Bin Md Yussof	University of Malaya
P-01	Poster	Ayu Fresno Argadianti	Universitas Airlangga
P-02	Poster	Hasrul Husain	Universitas Airlangga
P-03	Poster	Mohamed A A Jasem Alzubaidi	University of Malaya
P-04	Poster	Meilia Aquina Hakim	Universitas Airlangga
P-05	Poster	Shohei Matsui	Showa University
P-06	Poster	Nur Tsurayya Priambodo	Universitas Airlangga
P-07	Poster	Eben Ezer Lebang, drg	Universitas Airlangga
P-08	Poster	Titis Desiandrin	Universitas Airlangga
P-09	Poster	Novitasari	Universitas Airlangga
P-10	Poster	Wan Shahrman Yushdie b. Wan Yusoff	Universiti Putra Malaysia
P-11	Poster	Anis Rageh Mohammed Al-Maleki	University of Malaya
P-12	Poster	Zaleha Binti Shafiei	Universiti Kebangsaan Malaysia
P-13	Poster	Normaliza Ab Malik	Universiti Sains Islam Malaysia
P-14	Poster	E V Soma Sekhar Goud	Mahsa University
EP-01	ePoster	Reiska Kumala Bakti	Universitas Airlangga
EP-02	ePoster	Hening Tuti Hendarti, drg., M.S., Sp.PM	Universitas Airlangga
EP-03	ePoster	Desiana Radithia	Universitas Airlangga
EP-04	ePoster	Chui Ping Lei	University of Malaya
EP-05	ePoster	Bagus Soebadi, drg., MHPed., Sp.PM(K)	University of Malaya
EP-06	ePoster	Adiastuti Endah P., drg. M.Kes, Sp.PM	Universitas Airlangga
EP-07	ePoster	Lakshmi Magesh	Saveetha Dental College & Hospitals
EP-08	ePoster	Anitha Roy	Saveetha Dental College and Hospitals
EP-09	ePoster	Geetha R V	Saveetha Dental College and Hospitals
EP-10	ePoster	Nurina Febriyanti Ayuningtyas	Universitas Airlangga
EP-11	ePoster	Saka Winias	Universitas Airlangga
EP-12	ePoster	Ghasak Ghazi Faisal	International Islamic University Malaysia



## Program Detail

14 August 2018   Tuesday   Day 1	
08:00 - 08:30	<b>Registration</b>
08.30 - 09:15	<b>Opening Ceremony</b>
	<b>Keynote Address: Prof. Dr. Richard J Lamont, University of Louisville (USA)</b>
09:15 - 10:15	<i>In Concert: the Synergistic Activities of the Periodontal Microbiota.</i> Chairperson: Assoc. Prof. Dr. Raja Azman Raja Awang
10:15 - 10:30	<b>Tea Break</b>
10.30 - 10.45	<b>Photo Session</b>
	<b>Plenary Lecture 1: Prof. Dr. Lakshman Samaranayake, University of Sharjah (UAE)</b>
10.45 – 11.30	<i>The Oral Microbiome and Systemic Health: The Story So Far.</i> Chairperson: Assoc. Prof. Dr. Marina Mohd Bakri
	<b>Oral Presentation [Presentation 10 min + Q/A 5 min]</b> Chairperson: Prof. Dr. Wim Teughels
	OR 1. Androula Kazoullis: Strain-specific responses of human phagocytic cells to the yeast <i>Candida albicans</i>
	OR 2. Mohammad Arshad Aziz: Evidence for selective mRNA sorting into cancer exosomes
11.30 – 13.00	OR 3. Lahari A. Telang: Improving antibiotic prescribing practices in a dental school – an interventional study
	OR 4. Ziyada Salisa: The relationship of menstrual cycle based on ovarium cycle with periodontal inflammatory severity and calprotectin gingival crevicular fluid level in chronic periodontitis patient
	OR 5. Low Sin Yan: Influence of sucrose on cariogenicity of alpha-haemolytic biofilm-forming <i>Neisseria perflava</i> and <i>Streptococcus tigurinus</i> isolated from dental plaque.
	OR 6. Marina Mohd Bakri: Role of capsaicin in promoting oral health and it's antiproliferative activity in oral cancer
13:00 – 14:00	<b>Lunch / Poster exhibition / Trade booth</b>
	<b>Plenary Lecture 2: Prof. Dr. Onn Haji Hashim, University of Malaya (Malaysia)</b>
14:00 – 14:45	<i>The Salivary Proteome: Associated Changes in Cancer and Myocardial Infarction.</i> Chairperson: Dr. Zamirah Zainal Abidin
	<b>Oral Presentation [Presentation 10 min + Q/A 5 min]</b> Chairperson: Prof. Dr. Lakshman Samaranayake
	OR 7. Haizal Mohd Hussaini: Pre-metastatic niche and immune escape mechanism in oral squamous cell carcinoma metastatic lymph nodes
	OR 8. Syarida H Safii: Manuka honey as an adjunct to scaling & root planing in the treatment of chronic periodontitis. a pilot study
14.45-16.00	OR 9. Intan A Shahdan: A perspective on the antimicrobial properties of Miswak against polymicrobial infections in the oral cavity
	OR 10. Wong Gou Rean: Low Prevalence of Human Papilloma Virus in Oral Squamous Cell Carcinoma
	OR 11. Mohd Hafiz bin Arzmi: The effect of <i>Candida albicans</i> , <i>Actinomyces naeslundii</i> and <i>Streptococcus mutans</i> biofilm effluent on the expression of interleukin-6 and interleukin-8 from normal and oral cancer cell lines.
16.00 – 17.00	<b>Poster Evaluation Session [all presenters must be present during this time]</b> Chairperson: Assoc. Prof. Dr. Chen Yeng
17:00 – 17:30	<b>Tea Break</b>
17:30 – 19:00	<b>1<sup>st</sup> Biennial General Meeting MySOMOI [For MySOMOI members only]</b>
19:30 – 22:00	<b>Launching of MySOMOI &amp; DINNER [All participants]</b>



## Program Detail

15 August 2018   Wednesday   Day 2	
08:00 - 08:30	Registration
08:30 - 09:15	Immunology Quiz   First round   Online MCQ
09:15 - 10:00	<b>Plenary Lecture 3: Prof. Dr. Wim Teughels, KU Leuven (Belgium)</b> <i>Dysbiosis and Homeostasis in the Oral Microbial Ecology: Role and Opportunities for Good, Commensal Bacteria.</i> Chairperson: Assoc. Prof. Dr. Rathna Vaithilingam
10:00 - 10:30	Tea Break
10:30 - 11:45	<b>Oral Presentation [Presentation 10 min + Q/A 5 min]</b> Chairperson: Assoc. Prof. Dr. Maha Abdullah OR 12. Nurul Fatimah Mohamed Yusoff: <i>Linum usitatissimum</i> antibacterial activity on <i>Pseudomonas aeruginosa</i> in-vitro study OR 13. Jesinda P. Kerishnan: Discovery of potential biomarkers in oral squamous cell carcinoma using next generation sequencing technology OR 14. Salekul Islam: Type-2 Diabetes Mellitus (T2DM) patients carry different periodontal microbiota OR 15. Noratikah bt Awang Hasyim: Oral histoplasmosis in Malaysia: A retrospective analysis of cases reported in Stomatology Unit, Institute for Medical Research during 1995-2016 OR 16. Nanda Rachmad Putra Gofur: Periodontitis severity associated with disease activity and Systemic Lupus Erythematosus patients
11:45 - 12:45	ePoster Session
12:45 - 14:00	Lunch / Poster Exhibition / Trade booth
14:00 - 15:00	<b>Oral Presentation [Presentation 10 min + Q/A 5 min]</b> Chairperson: Prof. Dr. Hirotaka Kuwata OR 17. Siti Zaleha Raduan: Anticariogenic properties of <i>Solanum ferox</i> L. ethanol extract OR 18. May Ameen Saeed Alkoshab: Therapeutic role of honey in oral health and its anticancer activity OR 19. Kathreena Kadir: Maxillary sinus squamous cell carcinoma with superimposed mycosis: a surgical dilemma OR 20. Muhammad Nazirul bin Md Yusoff: A mystery of the ordinary: a case report on recurrent oral ulcers
15:00 - 15:45	<b>Interdisciplinary Lecture: Prof. Dr. Mohammad Tariqur Rahman, UM (Malaysia)</b> <i>Pervasive Pathology of Authorship in the Field of Biomedical Science: To or Not To be Continued?</i> Chairperson: Assoc. Prof. Dr. Maha Abdullah
15:45 - 16:30	<b>Immunology Quiz   Final round [Top five winners from the 1<sup>st</sup> round will face final round of questions on the stage]</b> Chairperson: Prof. Dr. Richard J Lamont
16:30 - 17:00	Prize giving and Closing Remarks



Message from Dr. Nomah bt Taharim  
Pengarah Kanan (Kesihatan Pergigian)  
Special Guest, Opening Ceremony, ICOIOM 2018



I am extremely pleased with the Faculty of Dentistry, University of Malaysia for organizing this International Conference on Oral Immunology and Oral Microbiology in conjunction with the newly formed the Malaysian Society of Oral Microbiology and Oral Immunology (MySOMOI). As

I see, this is indeed a common platform for basic Biomedical Scientists and Clinicians who are engaged in research in the field of oral health. Beyond institutional partnerships, the scientific collaboration is what matters the most, in which the people work together and exchange knowledge. Collaboration between research-performing institutions including the Ministry of Health Malaysia is no longer optional. World-class institutions must strengthen the strategic partnerships with other

universities, with civil societies as well as with the governments.

Therefore, I admire and congratulate the Faculty of Dentistry and MySOMOI to organize such an important event. I am sure, the keynote and plenary lectures from prominent international and local speakers, oral and poster presentations of researchers and clinicians from different parts of the world will make a significant impact to venture future directions of oral health and healthy living not only for the Faculty but for Malaysia.

Throughout this conference, I hope that you will stay engaged and enthusiastic to plan for the future of oral health and bring it to a greater height.

I would like to congratulate organizing committee members for their hard work and commitment to ensure that this conference can be held successfully.

Lastly, I wish all participants the very best of luck and may you have a wonderful time at this conference.



Message from Prof. Dato Dr. Zainal Ariff Abdul Rahman  
Dean,  
Faculty of Dentistry, University of Malaya



With immense pleasure I welcome you all from different parts of the world namely, Australia, Belgium, Bangladesh, Japan, India, Indonesia, New Zealand, USA and UAE. Allow me to take this opportunity to bid a warm welcome to our eminent speakers, distinguished panel of judges, academicians, clinicians and all participants. Selamat Datang to all.

This morning we embarked on a very special day to begin the first International conference on Oral Immunology and Oral Microbiology in the history academic conferences not only in Malaysia, but also in the Region and in the Globe. As a pioneer Dental School of the country, we are pleased to host this very special event in conjunction with the newly formed Malaysian Society of Oral Microbiology and Oral Immunology (MySOMOI).

As an academican, as a dentist, and as a scientist, I personally feel that this is the time that we need to build a common platform for Dentists, Medical Doctors, Researchers, Scientist and Industrialist to advance to a global level to change the conference concept and hopefully, become one of the main annual major platforms for scientists and clinicians to exchange ideas on the fundamental aspects and new innovation in oral health science. It is with great hope that this conference can be a platform for all participants not just to present their scientific research findings and building global networks, but also can be the platform for advancement of new and innovative development in oral health field.

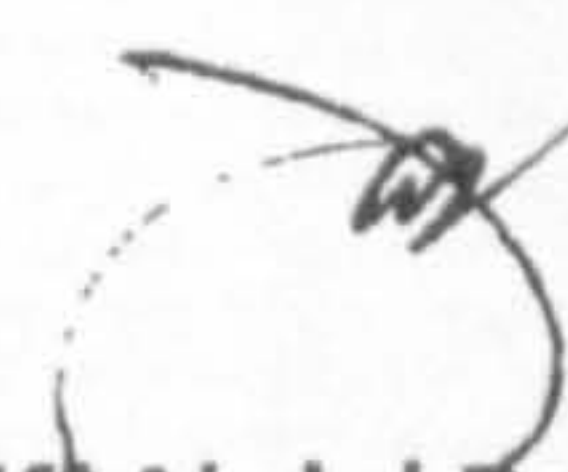
I would like to thank the judges from various public and private institutions for being part of this conference. To all the participants, I wish you all the best and hope you have a great scientific competitions.

I would also like to thank the University of Malaya Vice Chancellor, for the continuous support to the academic and research fraternity.

Congratulation to the organizing committee headed by Prof Dr. Mohmmad Tariqur Rahman, for the tireless effort and hard work in ensuring this event to be held successfully.

Thank you very much for our industrial partners for the continuous supports. Your generous contributions are indeed a great symbol of partnership which will surely benefit the dental industry in a long term.

To all participants, I wish you all the best and have a great conference. Thank you.

  
Zainal Ariff Abdul Rahman



Message from Assoc. Prof. Dr. Zamri Radzi  
Chief Advisor,  
Organizing Committee, ICOIOM 2018



I am most honoured and humble to be part of this historical journey of the oral immunology and oral microbiology research. The efforts made by Professor Dr Mohammad Tariqur Rahman, his organising committee team and the Advisory Board in organizing The International Conference on Oral Immunology & Oral Microbiology (ICOIOM) 2018 should be applauded.

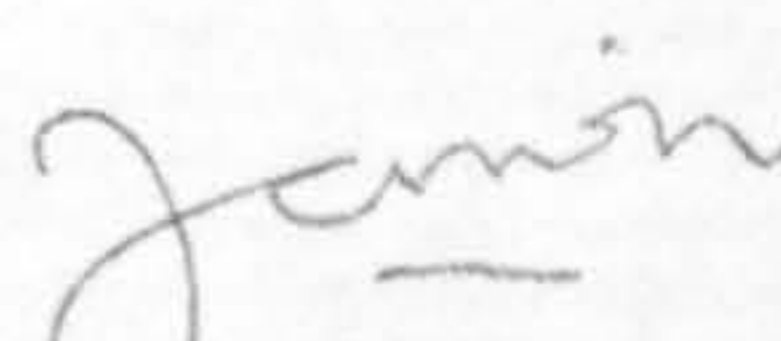
This conference is certainly an avenue that brings together all members of Physicians, Dentists, and Scientists who are engaged in clinical practice and/or basic research to promote multi, trans and interdisciplinary oral health research in a broader sense.

I am convinced that this effort will create a strong integration between the regional Oral Immunologists & Oral Microbiologists and connect the global leaders of the field. I would also like to congratulate Prof Dr Mohammad Tariqur Rahman and his team for the establishment of Malaysia Society of Oral Microbiologists and Oral Immunologists (MySOMOI), a first national society of its kind globally. It is our utmost hope that similar societies could be founded in other countries where a global network could be formed officially.

The conference is most fortunate to receive the support from all the eminent invited speakers who came all the way from USA, UAE and Belgium as well as speakers from home. It is without doubt that this conference will provide an innovative and comprehensive overview of the latest development in Oral Immunology & Oral Microbiology.

I wish all the speakers and participants a great meeting and hope that this intellectual discourse will continue beyond this conference in promoting our education and research goals.

Congratulations and thank you everyone for making this conference a success.

  
**Zamri Radzi**



Message from Prof. Dr. Mohammad Tariqur Rahman  
Chairman,  
Organizing Committee, ICOIOM 2018



After the initial discussion with Assoc. Prof. Dr. Zamri Radzi (Deputy Dean, Research and Development, Faculty of Dentistry, UM), to organize an International Conference on Oral Immunology and Oral Microbiology, we received the formal approval from Prof Dato Dr. Zainal Ariff (Dean, Faculty of Dentistry, UM). It was done in less than a week! At that time, I did not know who would respond to our call to join ICOIOM 2018. As a clinician or as a scientist you all came forward for the cause of integration of Science. Is it not incredible? Thank you so much for your support and making this 1<sup>st</sup> International Conference on Oral Immunology & Oral Microbiology (ICOIOM) 2018 a success.

It was my desire that the ICOIOM 2018 would create a strong integration between clinicians and scientists of the region in the field of oral immunology and oral microbiology and connect the global leaders of the field.

In pursuit of that desire, I am happy to announce that we have not only organized this event but also have formed the Malaysian Society of Oral Microbiologists and Oral Immunologists (MySOMOI). A good number of participants and presenters are attending this conference in relation to their commitment for MySOMOI. Thank you so much for all your support. You are the pioneer in the history of academic and professional Society in the field of Oral Microbiology and Oral Immunology.

My sincere gratitude to a vibrant team of organizing committee, without their experienced effort, I would not dare to say, "enjoy it all" without their all out support for last more than nine months! Nonetheless, you might experience unpleasant or unexpected event for that don't hesitate to blame me but do forgive us for our shortcomings. By any means not our intention is never to cause any inconvenience to any of you. I would also like to thank the University and the Faculty for the continuous support. To our partners and sponsors, your continuous commitments to academic and scientific events are much appreciated.

To all the presenters and participants, I wish you good luck and have a great conference.

*Tariqur Rahman*  
Mohammad Tariqur Rahman



## In concert: the synergistic activities of the periodontal microbiota

Richard J Lamont

School of Dentistry, University of Louisville, USA

The dynamic and polymicrobial oral microbiome is a direct precursor of periodontitis. Distinct microenvironments at periodontal surfaces harbor unique communities, which are regulated through interbacterial interactions and by host and environmental variables. Bacteria within polymicrobial communities can interact synergistically or antagonistically through sophisticated signaling systems. The collective output of community action is a major driver of homeostasis or dysbiosis, and ultimately health or disease. The keystone periodontal pathogen *Porphyromonas gingivalis* and the accessory pathogen *Streptococcus gordonii* accumulate into heterotypic communities which act synergistically to induce dysbiotic and destructive host responses. Communication between these organisms involves physical mechanisms based on co-adherence and chemical systems based on metabolite perception. Underlying both these systems in *P. gingivalis* is a signaling pathway dictated by patterns of protein tyrosine (de)phosphorylation, and which converges on the expression of colonization and virulence factors. Understanding the mechanisms governing oral polymicrobial synergy and dysbiosis may lead to new approaches to the treatment of oral diseases based on community manipulation and host modulation.



Professor Richard Lamont graduated with a BSc (Honours) from the University of Edinburgh in 1982 and completed his PhD in Bacteriology from the University of Aberdeen in 1985. He has held academic appointments in various universities in the USA. Since 2010, he holds the Endowed Professor and Chair in the Department of Oral Immunology and Infectious diseases in the University of Louisville, USA. He is also a recipient of various awards among which are the IADR Distinguished Scientist Award (1995, 2006), MERIT award from NIH (2009-present) and the University of Louisville Presidents Award for distinguished research in 2016. He is also a prolific researcher and is currently a principal investigator in 5 grants from NIDCR and also an investigator or mentor in 3 other active grants. He has completed research in 15 previous research grants. He has authored nearly 200 publications in peer-reviewed journals, 5 books, 12 book chapters and more than 400 abstracts. He has also been an invited speaker at many lectures world-wide. He has been editor in chief of *Molecular Oral Microbiology* since 2015 and is also currently an editor of *Microbes and Infection*. His area of research interest is Oral Microbiology and Immunology.



**Plenary Lecture 1**

Date: 14/08/2018 Time: 10:45-11:30

**The oral microbiome and systemic health: the story so far**

**Lakshman Samaranayake**

College of Dental Medicine, University of Sharjah , United Arab Emirates

Oral microbiome is the term given to the totality of organisms and their resident oral ecosystem. Biofilms are an integral component of the oral microbiome. The two commonest human afflictions and the primary diseases of the oral cavity, caries and periodontal disease, are caused by oral biofilms – traditionally called dental plaque. There is a growing body of data that periodontal biofilms related diseases, can have profound effects on total health and longevity causing atherosclerotic vascular disease (ASVD) including heart disease and stroke, adverse pregnancy outcomes, diabetes and, pulmonary disease. New data indicate that kidney disease and pancreatic cancer and indeed oral cancer may have associations with oral biofilms. This presentation will provide a state-of-the-art overview of the oral microbiome in health and disease and how these usually friendly microbial consortia becomes foe under elusive circumstances, possibly leading to disease and pathology at distant sites thus affecting the overall human morbidity and mortality. The clinical relevance of the new data for the patient and the practitioner will also be discussed.



Professor Samaranayake is the Vice-Dean of Sharjah University College of Dental Medicine and immediate-past Head, and Professor of Oral Microbiomics at the University of Queensland, School of Dentistry. He was also the Dean of Dentistry at the University of Hong Kong from 2004-2013. He has held teaching and consultant positions at the University of Glasgow, UK, University of Alberta, Canada and the University of Peradeniya, Sri Lanka and served as a Director of the FDI World Dental Federation and the Chairman of its Science Commission. The author of over 400 research articles, and with an h-index of 77, Professor Samaranayake has been cited in the international literature, over 20,500 times. He has won numerous awards for his research including the IADR Distinguished Scientist Award in Oral Medicine and Pathology as well as the King James IV Professorship of the Royal College of Surgeons of Edinburgh, UK. He has lectured in all five continents, and is the Editor-in-Chief of the Journal of Investigative and Clinical Dentistry and, a World Bank Consultant on problem based learning.



## The salivary proteome: associated changes in oral squamous cell carcinoma and prolonged habitual chewing of betel quid

Onn Haji Hashim

Faculty of Medicine, University of Malaya (Malaysia)

Confirmation of oral squamous cell carcinoma (OSCC) is dependent on histological analysis, which does not provide clear indication of cancer development from precancerous lesions. When whole saliva proteins of patients with OSCC (n = 12) were analysed by gel-based proteomics and compared with similar profiles generated from healthy individuals (n = 12), several aberrant proteins were detected. The OSCC patients' saliva haptoglobin beta chains and alpha1-antitrypsin were resolved into polypeptide spots with increased microheterogeneity. Their protein profiles also showed significant increased levels of alpha-1B glycoprotein, complement C3, hemopexin, transferrin, transthyretin, and beta chains of fibrinogen. The increased levels of haptoglobin, alpha1-antitrypsin, complement C3, hemopexin, and transthyretin in the saliva of OSCC patients were confirmed by ELISA. When the same gel-based proteomics analysis was performed on saliva protein samples of female subjects who had been chewing betel quid for more than 20 years (n = 10) and non-betel quid chewers of the same gender and range of age (n = 10), similar increased structural microheterogeneity and higher abundance of haptoglobin were detected in all the betel quid chewers compared to non-chewers. The majority of the betel quid chewers also showed significant higher abundance of alpha-1B glycoprotein, alpha1-antitrypsin, complement C3, hemopexin and transthyretin. Prolonged habitual chewing of betel quid is known to cause oral diseases, including OSCC. When taken together, our data demonstrated distinctive forms of protein aberration in the saliva of prolonged habitual betel quid chewers, which may be indicative of early oral precancerous conditions.



Onn Haji Hashim received his BSc Hons degree from University of Malaya in September 1984, and PhD from University of Glasgow in December 1987. He joined the academic staff of University of Malaya in January 1988, and is currently a Professor grade VK5 at the Department of Molecular Medicine. During the tenure, Onn has undertaken leave to conduct research at University of Osaka Medical School in 1991 and University of Alabama at Birmingham in 1994, under sponsorships of JSPS Fellowship and Fulbright Scholar Award, respectively. Onn is recipient of the National Academic Award 2007 in the category of journal article award. He has acted as external examiner of medical/dental biochemistry programmes at ten different universities, and external examiner of PhD/MSc theses from six different universities, including those from Singapore and India. He was appointed a Visiting Professor at Prince of Songkla University in 2016 and 2017, and elected as Fellow of the Academy of Sciences Malaysia in 2018. Onn has authored more than 90 peer-reviewed full text journal articles and delivered more than 50 guest lectures, locally and internationally. He has supervised 13 PhD and 13 Master's students to successful completion. His current research interest is in proteomics, particularly in the use of lectin-based techniques in search of novel glycopeptide biomarkers in bodily fluid samples from patients with different cancers. He is currently Head of University of Malaya Centre for Proteomics Research and sits on the Editorial Board of Biomarker Research since 2012.



Plenary Lecture 3

Date: 15/08/2018 Time: 09:15-10:00

## Dysbiosis and homeostasis in the oral microbial ecology: role and opportunities for good, commensal bacteria

Wim Teughels

Faculty of Medicine, Katholieke Universiteit Leuven, Belgium

Many oral diseases do not originate from one specific pathogen. Most of these diseases are accompanied by clear changes within the oral microbiota which can consist of hundreds of different bacterial species. Although from an educational point of view, we as dentists are trained to believe that bacteria are bad and we need to eradicate them, it becomes more and more clear from research that many of the oral bacteria have a protective function. However, many changes in the host can result in changes within the oral microbiota resulting in an unfavorable, disease inducing or associated microbiota which is called dysbiotic. Additionally, the overuse of antibiotics but also from antiseptics, which are considered harmless, seems to modify the oral microbiota and predisposes it to become dysbiotic. Considering the protective nature of many commensal oral bacteria, there might however also be therapeutic opportunities. This lecture will focus on dysbiosis, issues with antibiotics and antiseptics, the protective nature of commensal bacteria and their clinical application in oral promicrobial therapies such as probiotics, prebiotics and predator bacteria.



Professor Wim Teughels graduated in 2000 as a dentist at the University of Leuven (KULeuven) in Belgium. At the same university, he obtained in 2006 the degree of specialist in Periodontology and he defended successfully his PhD thesis. He also received a "European Federation of Periodontology (EFP) certificate in Periodontology". In 2007, he was appointed assistant professor at the Faculty of Medicine of the University of Leuven (KULeuven). His teaching obligations consist of a variety of subjects within the field of Periodontology and Human Anatomy. Currently, he works as a full professor at the University of Leuven (KULeuven).

His research focuses on Periodontology and oral microbiology with a special emphasis on bacterial adhesion, microbial interactions, antimicrobials and probiotics. This has led to more than 115 publications in international journals and more than 10 chapters in books. He received 5 national and 3 international awards and is frequently invited both nationally as internationally for lectures regarding the concept of "probiotics". In 2012, Prof. Teughels became an associate editor for the Journal of Periodontal Research and an associate editor for the "Carranza's Clinical Periodontology" textbook.





**Interdisciplinary Lecture** Date: 15/08/2018 Time: 15:00-15:45

## **Pervasive pathology of authorship in the field of biomedical science: To be or not to be continued?**

**Mohammad Tariqur Rahman**

Faculty of Dentistry,, University of Malaya, Malaysia

Assigning authorship requires some form of intellectual contribution (IC) to the published work. A number of guidelines, including the most widely accepted one from the International Committee for Medical Journal Editors (ICJME) are in place to declare intellectual contribution of an individual to be listed as author. A large number of journals including the top ranking journals (based on the journal impact factor), such as Nature, Lancet, Proceedings of National Academy of Science USA, and the British Medical Journal, require a statement of each author's IC. In most cases the contributions are specified in more precise manner such as, which part of an experiment was conducted by an author or who drafted the manuscript. In other cases, such as in FEBS Journal and PLOS journals, authors need to declare their contributions in a specified format provided by the journal during online submission of the manuscript. Nonetheless, the global concern of assigning authorship without any IC is increasing with the increase in the number of authors in multi-authored papers, mostly in the field of Biomedical Science. A number of measures such as quantitative measure of the IC and a possible scheme of authorship categorization will be discussed to address the global concern of unethical practices in authorship assignment. The unethical practice of authorship assignment is unlikely to be stopped. However, the implementation of quantitative measure of IC and authorship categorization will at least minimize the "fake" productivity in terms of number of publications reported by any author.

Prof Dr. Mohammad T Rahman obtained BSc (1993) and MSc (1995) in Microbiology from the University of Dhaka (Bangladesh), MSc (1998) and PhD (2001) in Biochemistry from Katholieke Universiteit Leuven (Belgium). He completed postdoctoral training in the field of Neuroscience at the University of Fukui (Japan). He worked as Assistant Professor at Biotechnology Discipline at Khulna University (Bangladesh) and Founding Chair of the Department of Pharmacy at East West University (Bangladesh). He also worked as faculty member at International Islamic University Malaysia from October, 2005 until July 2015. Since July 2015, he is at the Faculty of Dentistry, University of Malaya (Malaysia). Among his multidisciplinary research interests, notable contributions are made in the fields of: metallo-biochemistry in health and diseases; neocortex development; medicinal or pharmacological applications of natural products; halal food science; in vitro propagation of mesenchymal stem cells; and more recently on scientometrics. Prof Tariq is currently Executive Editor of Annals of Dentistry University of Malaya (ADUM) and also President of Recently formed Malaysian Society of Oral Microbiologists and Oral Immunologists (MySOMOI).



## Strain-specific responses of human phagocytic cells to the yeast *Candida albicans*

Androula Kazoullis\*, R.B. Ashman

School of Dentistry, University of Queensland, Brisbane, Australia

\*andrea.kazoullis@uqconnect.edu.au

*Candida albicans* is an important opportunistic pathogen in humans, frequently manifesting as mucosal infections. Growing evidence suggests that clinical strains interact differently in their abilities to colonise mucosal layers including the oral cavity. Two clinical isolates (3630 – cutaneous, 3683 – mucosal) were used to compare adherence and downstream cytokine production in human phagocytic and non-phagocytic cells. *Candida* isolates were obtained from the Mycology Reference Laboratory, Royal North Shore Hospital, Sydney. Adherence assays using HeLa, RAW 264.7 (mouse) cell monolayers and human monocytic (THP-1) cells (differentiated with PMA - MDM) were cultured with either 3630 or 3683. After 1h incubation at 37°C, cell monolayers were washed and the monolayers detached. The supernatants were serially diluted, plated and incubated at 37°C for 24 hours. MDM were stimulated with each isolate, 300µl of supernatant was harvested at 2, 4, 6 and 8 hours post infection and stored at -20°C. IL-1β

and TNF-α were measured by ELISA according to manufacturer's instructions. Adherence assays showed isolate 3683 was significantly more adherent to HeLa cells ( $p < 0.005$ ) than 3630. This result was confirmed in the MDM, again at a high level ( $p < 0.0005$ ) of statistical significance. The result was specific for human cells, as adherence assays performed with RAW264.7 cells showed no difference between the two isolates. Levels of pro-inflammatory cytokines in cultures of MDM incubated with 3683 demonstrated high levels (5.4 - 30.9 pg/ml) of IL-1β at 6 hours, whereas in cultures incubated with 3630, levels were negligible. In contrast, TNF-α concentrations were similar for both isolates. As far as we are aware, this is the first demonstration of a functional difference between clinical isolates of *C. albicans* in their interactions with human phagocytes. This clearly has important ramifications for the understanding of host responses to the various forms of candidiasis.

Oral : OR-01  
Date : 14/08  
Session : 11<sup>30</sup>-11<sup>45</sup>

## Evidence for selective mRNA sorting into cancer exosomes

Mohammad Arshad Aziz\*, Fatima Qadir, Ahmad Waseem, and Muy-Teck

The Centre for Oral Immunobiology & Regenerative Medicine, Institute of Dentistry, Barts & The London School of Medicine and Dentistry, Queen Mary University of London, England, United Kingdom

\*mohammad.aziz@postgrad.otago.ac.nz

**Introduction:** Exosomes are membrane bound vesicles released by cells into their extracellular environment. It has been shown that cancer cells exploit this mechanism for local and/or distant oncogenic modulation. As it is not clear if oncogenic mRNA molecules are sorted selectively or randomly into exosomes, this study investigated using a cell culture model. **Methods:** Exosomes were isolated using an established ultracentrifugation method from cell culture supernatant of a premalignant buccal keratinocyte (SVpgC2a) and a malignant (SVFN10) cell lines. Exosome and cell debris pellets were then subjected to RNase A and proteinase K protection assays prior to extraction of total RNA for reverse transcription quantitative PCR (RT-qPCR) to quantify mRNA of 15 expressed genes. **Results:** RNA in cell debris pellet were sensitive to RNase A treatment but exosomal RNA were resistant to RNase A. Pre-incubation of exosome pellet with Triton-X to solubilize membranes rendered exosomal RNA sensitive to RNase A, indicating that exosomal RNA was protected within exosomal membranes. RT-qPCR showed that mRNA were present within exosomes. Of the 15 genes selected for RT-

qPCR in this study, two (FOXM1 and HOXA7) were found to be more abundant in exosomes secreted from the malignant SVFN10 cells compared to the premalignant SVpgC2a cells. RNase A pre-treatment on exosomal pellet did not degrade FOXM1 and HOXA7 mRNA suggesting that these mRNA were protected within exosomes. Interestingly, one gene (ITGB1), although abundantly expressed in parental cell, was not resistant to RNase A pre-treatment indicating that not all mRNA purified from the exosomal pellet were sorted into the vesicles. **Conclusion:** In conclusion, this study presented the first evidence that mRNA molecules were found to be protected within exosomes secreted by human buccal keratinocytes. Furthermore, we presented evidence for selective sorting of specific mRNA molecules into exosomes which is independent of parental cell mRNA concentration. This suggests that tumour cells preferentially package certain oncogenes in their exosomes as a potential intercellular vehicle for reprogramming target cells. Signature of mRNA contents within cancer exosomes may have clinical applications for diagnostic and therapeutic purposes.

Oral : OR-02  
Date : 14/08  
Session : 11<sup>45</sup>-12<sup>00</sup>



## Improving antibiotic prescribing practices in a dental school – an interventional study

Oral : OR-03  
Date : 14/08  
Session : 12<sup>00</sup>-12<sup>15</sup>

Lahari Ajay Telang<sup>1\*</sup>, Jayashri Nerali<sup>2</sup>, Kalyan Charavarthy<sup>3</sup>, Fawaz Siddiqui<sup>4</sup>

<sup>1</sup>Department of Oral Medicine and Radiology; <sup>2</sup>Department of General Dentistry; <sup>3</sup>Department of Conservative Dentistry and Endodontics; <sup>4</sup>Department of Pediatric dentistry, Penang International Dental College, 5050 Jalan Bagan Luar, 12000, Butterworth, Penang, Malaysia.

\*lahari@pidc.edu.my

Antimicrobial resistance is a condition in which the microbes develop the ability to negate the effect of antimicrobial agents on them. This poses a health threat as the standard antibiotics become ineffective, making future medical treatment of infections difficult to manage. Over-use and irrational antibiotic prescribing in dentistry can potentiate this health threat. The objective of this study was to improve the antibiotic prescribing practices in a dental school in Malaysia. The study was conducted in two formats to capture the true effect of the proposed intervention. First a retrospective analysis of the past antibiotic prescriptions was conducted using a clinical audit. This was followed by a cross sectional study on awareness and prescribing practices among the faculty members, using a validated self-administered questionnaire. A workshop was then conducted on antimicrobial resistance for the faculty members. During the workshop the results of the clinical audit was shared and a discus-

sion on antimicrobial stewardship was facilitated. Suggestions and recommendations to improve the rational use of antibiotics was evaluated. A check list was developed and its use made mandatory when any prescription for an antibiotic was written. The workshop was followed by another cycle of the same self-administered questionnaire, and a prospective clinical audit was conducted over the next six months. The results of the study showed that the awareness about antibiotic resistance and attitude of faculty towards prescribing antibiotics significantly improved. This effect was further verified from the prospective clinical audit, which most importantly showed decrease in the number of antibiotic prescriptions. Dental schools play an important role in developing rational practice of dentistry amongst their students. From this study, not only did the faculty benefit, but the effects also percolated to the students. Most importantly, this was a step towards promoting the health of the community.

## The relationship of menstrual cycle based on ovarium cycle with periodontal inflammatory severity and calprotectin gingival crevicular fluid level in chronic periodontitis patient

Oral : OR-04  
Date : 14/08  
Session : 12<sup>15</sup>-12<sup>30</sup>

Ziyada Salisa<sup>1\*</sup>, Endang Yunia<sup>1</sup>, Fanni Kusuma Djati<sup>2</sup>, Hernayanti<sup>3</sup>

<sup>1</sup>Dental Medicine; <sup>2</sup>Department of Oral Biology, Dentistry; <sup>3</sup>Department of Ecotoxicology and Biochemistry, Biology, Jenderal Soedirman University, Purwokerto, Central Java

\*zysalisa@gmail.com

Periodontal disease is commonly caused by Porphyromonas gingivalis that released lipopolysaccharide endotoxin (LPS). LPS would cause activation of immune system function and activities in recognizing pathogens. The stimulation of pro-inflammatory cytokines secretion in periodontal tissue is not only derived from pathogenic bacteria. Various genetic conditions and systemic conditions are also being the trigger factor. One of systemic factor is sex hormones such as estrogen and progesterone. Both of these hormones fluctuate during the menstrual cycle. The purpose was to determine the relationship of menstrual cycle based on ovarian cycle with periodontal inflammatory severity and calprotectin gingival crevicular fluid (GCF) levels in chronic periodontitis patient. This research was analytic observation. The samples in this reasearch were 9 women who aged 17-45 years with a diagnosis of chronic periodontitis and had a normal menstrual

cycle (21-35 days). All subjects were calculated menstrual cycle and determined the phase of follicular, ovulation, and luteal. Clinical examination and GCF sampling were performed at each phase. Measurement of GCF calprotectin level was done using ELISA Reader. The results of the linear regression test showed a relationship between the menstrual phase and the GCF calprotectin level of chronic periodontitis patients, but no relationship between the phases in the menstrual cycle with inflammatory severity (periodontal index). One way ANOVA test showed significant difference of calprotectin in all three phases with  $p < 0.05$ . The conclusion was that there is relationship of menstrual cycle based on ovarium cycle with calprotectin GCF level and there is no relationship of menstrual cycle with inflammatory severity (Periodontal Index) in chronic periodontitis patient.



## Influence of sucrose on cariogenicity of alpha-haemolytic biofilm-forming *Neisseria perflava* and *Streptococcus tigurinus* isolated from dental plaque.

Oral : OR-05  
Date : 14/08  
Session : 12<sup>30</sup>-12<sup>45</sup>

Sin Yan Low<sup>1\*</sup>, Chong Seng Shit<sup>1,2</sup>

<sup>1</sup>Department of Biological Science, Faculty of Science; <sup>2</sup>Centre for Bio-Diversity Research, Universiti Tunku Abdul Rahman

\*sinyan.low@gmail.com

Dental plaque is a form of complex biofilm formed on the surface of the tooth which allows for the onset of dental caries when biofilm-forming bacteria in dental plaque ferment carbohydrates, especially sucrose. The persistence of alpha-haemolytic oral bacteria cum biofilm producers present in high amount in the oral cavity raised concern over oral health in general and subsequently systemic health as most alpha-haemolytic bacteria are found to be opportunistic pathogens. This study aims to study the relationship between sucrose utilization with two factors in relation to cariogenicity, which are biofilm-forming strength and acid production (acidogenicity). In this study, comparison between Gram-negative *Neisseria perflava* and Gram-positive *Streptococcus tigurinus* isolated from dental plaque were made using brain-heart infusion broth with and without 1% (w/v) sucrose supplementation. Influence of sucrose on biofilm-forming strength of both bacteria was addressed via (i) microtiter plate (MTP) assay and (ii) scanning electron microscopic

(SEM) examination of the biofilms. MTP assay quantitation was carried out via 0.1% (w/v) crystal violet staining followed by measurement of OD570. Both *N. perflava* and *S. tigurinus* showed to be strong biofilm producer with and without sucrose. With the presence of sucrose, both bacteria demonstrated significant increase ( $p < 0.05$ ) of biofilm production. Correspondingly, SEM examination (platinum coating) was in agreement with MTP assay as the thickness of biofilm formed upon sucrose supplementation significantly increased ( $p < 0.05$ ) compared to without sucrose. Furthermore, the acidogenicity of both bacteria was evaluated through acid production test. Upon 24 hours incubation, the culture broth was centrifuged at 5,000 rpm and the supernatant was collected for pH measurement. Both bacteria exhibited a significant drop ( $p < 0.05$ ) in pH upon 24 hours incubation with sucrose, with *S. tigurinus* showing a greater magnitude than *N. perflava*. Based on this experimental design, the results suggested that *S. tigurinus* possess greater cariogenic properties.

## Role of capsaicin in promoting oral health and its antiproliferative activity in oral cancer

Oral : OR-06  
Date : 14/08  
Session : 12<sup>45</sup>-13<sup>00</sup>

Mohd Bakri Marina<sup>1\*</sup>, Kamaruddin Mohammad Firdaus<sup>1</sup>, Aied Mohammed Alabsi<sup>2</sup>, Abdul Razak Fathilah<sup>1</sup>, Hossain Mohammad Zakir<sup>3</sup>

<sup>1</sup>Department of Oral and Craniofacial Sciences, Faculty of Dentistry, University Malaya, Kuala Lumpur; <sup>2</sup>Mahsa University, Wilayah Persekutuan, Malaysia

<sup>3</sup>Department of Oral Physiology, Faculty of Dentistry, Matsumoto Dental University., Shiojiri, Japan

\*marinab@um.edu.my

Capsaicin, an active component of chili peppers, is a common spice used in different types of cuisines all over the world. Its role in promoting oral health includes among others, stimulation of saliva and secretion of the salivary IgA that plays a crucial role in the immune system. Capsaicin has been reported to be effective against various type of cancer but its effect on oral cancer is not well understood. It is the objective of this study to determine the antiproliferative activity of capsaicin on an Asian oral squamous cell carcinoma cell line, ORL-48, *in vitro*. ORL-48 cancer cells was obtained from the Cancer Research Institute and Foundation, Subang Jaya Medical Center (CARIF, Malaysia). The anti-proliferative effect of capsaicin was determined using MTT assay and the concentration of capsaicin producing 50% cell inhibition (IC<sub>50</sub>) was de-

termined. The effect of capsaicin on ORL-48 cell proliferation was determined using IC<sub>25</sub>, IC<sub>50</sub> and IC<sub>75</sub> values at 24, 48 and 72 hours. Morphological analysis of the cells was analysed using time lapse microscope. The IC<sub>50</sub> value for capsaicin-treated ORL-48 cells was 200  $\mu$ M at 24, 48, 72 hours. When exposed to increased concentrations of capsaicin, cell viability was found to decrease in a time dependent manner indicating cytotoxic effect of capsaicin on ORL-48 cells. Capsaicin was also found to decrease ORL-48 cell population in a concentration and time dependent manner. The antiproliferative effects of capsaicin could be useful in the therapy of OSCC and for the development of natural products for the maintenance of oral health.



## Pre-metastatic niche and immune escape mechanism in oral squamous cell carcinoma metastatic lymph nodes

Oral : OR-07  
Date : 14/08  
Session : 14<sup>45</sup>-15<sup>00</sup>

Haizal Mohd Hussaini<sup>1\*</sup>, A. Alkharusi<sup>1</sup>, N.R Ibrahim<sup>1</sup>, R.B Zain<sup>2</sup>, T. Milne<sup>1</sup>, A.M Rich<sup>1</sup>

<sup>1</sup>Sir John Walsh Research Institute, Faculty of Dentistry, University of Otago, Dunedin, New Zealand

<sup>2</sup>Faculty of Dentistry, MAHSA University, Bandar Saujana Putra, Selangor, Malaysia

\*haizal.mh@otago.ac.nz

Oral squamous cell carcinoma (OSCC) develops in an immune cell-rich environment, where inflammatory cells in the tumour microenvironment establish an anti-tumour response by secreting pro-inflammatory cytokines. In parallel the cancer cells also induce various mechanisms suppressing the anti-tumour response such as regulating the network of suppressive cytokines and recruitment of suppressive regulatory T cells (Tregs). Although these tumour cell escape mechanisms are proven in primary OSCC, there is minimal information on how OSCC tumour cells manage to seed and disseminate to regional cervical lymph nodes. It is postulated that the escape mechanisms of tumour cells in the primary tumour site are also seen in regional lymph nodes. We associated this with the Pre-Metastatic Niche (PMN) concept, a concept that re-

fers to preparation of the tumour microenvironment at a future metastatic site before the arrival of disseminated tumour cells. Our group has shown that lymph nodes with metastatic OSCC demonstrated strong T cell anergy with up-regulation of T cell anergy genes. We also demonstrated that expression of IL22, IL23 and STAT3 protein was significantly higher in negative nodes when compared with the metastatic nodes ( $p < 0.05$ ). Vessel growth factor VEGFC was significantly overexpressed in metastatic OSCC lymph nodes compared with negative nodes. **Conclusions:** Our results have shown that OSCC-involved lymph nodes may undergo PMN preparation including proliferation of vessels, in order to facilitate the dissemination of tumour cells to regional lymph nodes.

## Manuka honey as an adjunct to scaling and root planing in the treatment of chronic periodontitis. A pilot study.

Oral : OR-08  
Date : 14/08  
Session : 15<sup>00</sup>-15<sup>15</sup>

Syarida H. Safii<sup>1,2\*</sup>, Natalie J. Medlicott<sup>3</sup>, Trudy J. Milne<sup>2</sup>, Geoffrey R. Tompkins<sup>2</sup>, Warwick J. Duncan<sup>2</sup>

<sup>1</sup>Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya, 50603 Kuala Lumpur, Malaysia.

<sup>2</sup>Sir John Walsh Research Institute, Faculty of Dentistry, University of Otago, Dunedin, 9016; <sup>3</sup>School of Pharmacy, University of Otago, PO Box 56, Dunedin, 9054 New Zealand.

This pilot study was conducted to evaluate the effect of manuka honey administered as subgingival adjunct to scaling and root planing (SRP) in the treatment of chronic periodontitis (CP). This study used a split-mouth design with a three-month follow-up. Participants diagnosed with moderate to advanced CP were recruited. They received SRP (control sites) in one side of the mouth and; SRP and manuka honey application (SRP+MH; test sites) in the other. Clinical parameters (modified bleeding index (MBI), probing pocket depth (PPD), clinical attachment level (CAL)) were recorded at baseline, six and 12 weeks. Gingival crevicular fluids and subgingival plaque were sampled. Microbiological outcomes were analysed using BAPNA assay and polymerase chain reaction. Seven participants completed the study, mean age  $54.4 \pm 12.2$  years. Single application of manuka honey NPA>25 to

periodontal pockets did not result in additional benefit on reduction of PPD, improvement of CAL and reduction of p-nitroaniline (level of trypsin-like enzymes) against SRP alone ( $p > 0.05$ ). However, test sites exhibited greater reduction in MBI than control sites ( $p < 0.001$ ), mean differences 1.3 (95% CI 1.2-1.5) and 1.7 (95% CI 1.5-1.9) at six weeks and 12 weeks, respectively. The proportion of mutans streptococci decreased at six weeks in test sites ( $p = 0.002$ ) but increased at 12 weeks in control sites ( $p = 0.005$ ). Adjunctive application of manuka honey to periodontal pockets effectively improved gingival inflammation, however it did not demonstrate significant clinical benefits on reduction of pocket depth and improvement of attachment level in comparison to SRP. Manuka honey provides limited benefits as an adjunct to SRP in the treatment of CP.



## A perspective on the antimicrobial properties of *Miswak* against polymicrobial infections in the oral cavity

Oral : OR-09  
Date : 14/08  
Session : 15<sup>15</sup>-15<sup>30</sup>

Biomedical Science Department, Faculty of Allied Health Sciences, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, 25200 Kuantan, Pahang, Malaysia  
\*azura.iium@gmail.com

**BACKGROUND:** *Salvadora persica* is a plant chewing stick which has been approved by the World Health Organisation, as an effective oral hygiene tool. With its antimicrobial properties, miswak is effective against dental caries, endodontic infections as well as the periodontitis. These oral diseases are polymicrobial in nature, and appear to result from a complex interaction between the commensal microbiota, host susceptibility and environmental factors such as diet and smoking. Miswak removes the bacterial plaque mechanically, and chemically by inhibiting the growth of cariogenic and periodontal microorganisms. **STUDY AIMS:** In this study, the antimicrobial properties of Miswak will be discussed, including the up-to-date antimicrobial assays used to analyse its effectiveness. Gaps in the current antimicrobial systems that are used to study cariogenic, endodontic and periodontal micro-

organisms will be explored. Phytochemistry and pharmacological properties of Miswak that we have to-date will be highlighted. **METHODOLOGY:** Various databases (Science Direct, PubMed and Google Scholar) and relevant primary sources were probed and analysed. **FINDINGS:** Miswak contains natural chemical compounds such as fluorides, sulphurs, tannic acid, resins and alkaloids (salvadorine) that can maintain healthy teeth and gums. Since the polymicrobial infections require critical approach in combating bacterial plaques, the multi-effects of Miswak as a cleaning tool will be discussed in the presentation. **CONCLUSION:** The presentation provides a perspective on the antimicrobial effects of various oral health benefits of Miswak in the light of scientific and social evidences.

## Low prevalence of human papilloma virus in oral squamous cell carcinoma

Oral : OR-10  
Date : 14/08  
Session : 15<sup>30</sup>-15<sup>45</sup>

Gou Rean Wong<sup>1\*</sup>, Thomas George Kallarakkal<sup>1,2</sup>, Anand Ramanathan<sup>1,2</sup>, Sok Ching Cheong<sup>2,3</sup>, Wan Harun Himratul-Aznita<sup>4</sup>, Zuraiza Mohamad Zaini<sup>1,2</sup>, Rosnah Binti Zain<sup>1,2,5</sup>

<sup>1</sup>Oral Cancer Research & Coordinating Centre, Faculty of Dentistry; <sup>2</sup>Department of Oral and Maxillofacial Clinical Sciences; <sup>3</sup>Oral Cancer Team, Cancer Research Malaysia; <sup>4</sup>Department of Oral & Craniofacial Sciences, Faculty of Dentistry, University of Malaya; <sup>5</sup> Faculty of Dentistry, MAHSA University, Malaysia

\*gourean@gmail.com

In contrast to strong association of Human papilloma virus (HPV) with ano-genital and oropharyngeal cancers, the link between HPV infection and oral squamous cell carcinoma (OSCC) appears unclear as a variable range of HPV prevalence has been reported. This may be due to a lack of uniformity in the classification of oral cancer subsites and the use of different detection approaches. As HPV-positive squamous cell carcinoma patients' generally respond well to treatment and have a much better prognosis, it is important to determine HPV status in OSCC by using a reliable method. This study was primarily intended to examine the HPV prevalence of OSCC in Malaysian patients by using, a PCR based HPV gen- oArray diagnostic kit capable of simultaneously identifying 21 HPV genotypes and also to evaluate the utility of p16<sup>INK4A</sup> overexpression as a surrogate marker of oral HPV infection

using the CINtec® Histology kit on formalin-fixed paraffin- embedded (FFPE) tissues. In this study, HPV DNA was detected in only 2 samples (1.3%) out of 158 genomic DNA samples that were extracted from frozen OSCC tissues using commercial column-based method. CINtec® p16<sup>INK4A</sup> immunohistochemistry (IHC) was performed on subset of the samples (n=39) showed that none of the FFPE samples were positive for p16<sup>INK4A</sup> overexpression. There was no HPV DNA/p16 double positive case detected in this study. Results of this study suggests that there is very low prevalence of HPV-associated OSCC in the Malaysian population. p16<sup>INK4A</sup> IHC results showed that there is lack of sensitivity to use p16<sup>INK4A</sup> overexpression as surrogate marker to determine HPV status in OSCC tissues.



## The effect of *Candida albicans*, *Actinomyces naeslundii* and *Streptococcus mutans* biofilm effluent on the expression of interleukin-6 and interleukin-8 from normal and oral cancer cell lines

Oral : OR-11  
Date : 14/08  
Session : 15<sup>45</sup>-16<sup>00</sup>

Mohd Hafiz Arzmi<sup>1,2\*</sup>, Stuart Dashper<sup>2</sup>, Nicola Cirillo<sup>2</sup>, Neil O'Brien-Simpson<sup>2</sup>, Michael McCullough<sup>2</sup>

<sup>1</sup>Department of Fundamental Dental and Medical Sciences, Kulliyah of Dentistry, International Islamic University Malaysia, Kuantan Campus, Pahang.

<sup>2</sup>Melbourne Dental School, The University of Melbourne, Victoria, Australia

\*hafizarzmi@iium.edu.my

Oral cancer is the sixth most common cancer worldwide. It is suggested that polymicrobial infection may involve in oral carcinogenesis. This study aimed to determine the effect of mono-culture and polymicrobial biofilms effluent from *C. albicans*, *Streptococcus mutans* and *Actinomyces naeslundii* to the expression of Interleukin-6 (IL-6) and Interleukin-8 (IL-8) from normal and oral squamous cell carcinoma (OSCC) cell lines, with the hypothesis that biofilm effluent promote oral carcinogenesis. OKF6 cell line isolated from healthy oral cavity was grown to 80% confluent in 12-well plate and incubated with 80% (v/v) serum free medium (SFM) containing biofilm effluent from mono-culture of *C. albicans* (ALC3), *S. mutans* (SM), *A. naeslundii* (AN) or polymicrobial (TRI) for 2 h and 24 h. Incubation of the cell line with 100% SFM (NE) was conducted to represent the negative control. To quantify the amount of IL-6 and IL-8 secreted by epithelial cells in response to biofilm effluent, the conditioned medium was col-

lected and analysed using Bio-Plex protein array system and Bio-Rad cytokine multi-plex panel. Similar protocol was repeated with H357 cell line that was isolated from patient with OSCC. The results showed that OKF6 cell line that was incubated with ALC3 had significant decrease IL-8 expression while incubation with SM exhibited significantly increase IL-6 expression when compared to NE after 2 h incubation ( $P < 0.05$ ). In addition, significant increase of IL-6 and IL-8 expression were observed after 24 h incubation of OKF6 cell line with TRI effluent when compared to NE ( $P < 0.05$ ). The incubation of H357 with AN, SM and TRI effluent exhibited significant increase of IL-6 and IL-8 expression after 2 h incubation, whereas significant increase of the similar cytokines were observed when incubated with all effluent after 24 h in comparison to NE ( $P < 0.05$ ). In conclusion, biofilm effluent promotes malignant phenotype of OSCC cell line.

## *Linum usitatissimum* antibacterial activity on *Pseudomonas aeruginosa* in-vitro study

Oral : OR-12  
Date : 15/08  
Session : 10<sup>30</sup>-10<sup>45</sup>

Nurul Fatimah Mohamed Yusoff<sup>2\*</sup>, Basma Ezzat Mustafa<sup>1</sup>, Pram Kumar A/L Subramaniam<sup>1</sup>, Nazih Shaban Mustafa<sup>1</sup>, Muhannad Ali Kashmoola<sup>1</sup>, Khairani Idah Mokhtar<sup>1</sup>, Deny Susanti Darnis<sup>2</sup>.

<sup>1</sup>Kulliyah of Dentistry; <sup>2</sup> Kulliyah of Science, International Islamic University Malaysia, Kuantan Campus, Pahang.

\*nurulfatihah.mohdyusoff@gmail.com

Flaxseed comes from the flax plant (*Linum usitatissimum*), which has been cultivated for domestic use since prehistoric times. *Pseudomonas aeruginosa* is a Gram-negative bacterium has the ability to survive in adverse environments and develop multiple antibiotic resistance mechanisms. This study aims to evaluate the susceptibility of *Pseudomonas aeruginosa* (*P. aeruginosa*) in vitro to the ethanolic extract obtained from flax seed. This is a laboratory experimental in vitro study using *P. aeruginosa* cultured in nutrient agar. The pathogen then was inoculated in nutrient based broth and incubated for 24 hours. Flaxseed extract efficacy was tested by measurement of the zone of inhibition. The result of the extracts antimicrobial activities were compared with streptomycin as

positive control and DMSO as negative control. The statistical analysis was done by using SPSS19. There is positive antibacterial effects of flaxseed extract against *Pseudomonas aeruginosa* and it was comparable in efficacy to that of streptomycin. This study concludes that flaxseed extract can help in inhibiting *Pseudomonas aeruginosa* activity. The implication of this result will be useful in propagating the use of natural based product as therapeutic drug against the chemical synthetic products. The results of the present study scientifically validate the inhibitory capacity of *Linum usitatissimum* as antibiotic against one of the most resistant pathogens and contribute towards the development of new treatment options based on natural products.



## Discovery of potential biomarkers in oral squamous cell carcinoma using next generation sequencing technology

Oral : OR-13  
Date : 15/08  
Session : 10<sup>45</sup>-11<sup>00</sup>

Jesinda P. Kerishnan<sup>1\*</sup>, Y Chen<sup>1,2</sup>

<sup>1</sup>Department of Oral & Craniofacial Sciences; <sup>2</sup>Oral Cancer Research and Coordinating Centre, Faculty of Dentistry, University of Malaya, 50603, Kuala Lumpur, Malaysia

\*jesindapaul@yahoo.co.uk

Oral cancer patients have one of the lowest survival rates in the world. Early detection and diagnosis using more reliable biomarkers would improve the current survival rate of OSCC patients. The present study aims to identify potential molecular biomarkers associated with OSCC using a combination of genomics and proteomics technologies. Using the genomic approach, 12 pairs of gDNA from OSCC and their adjacent non-malignant tissues were subjected to exome sequencing. In proteomic approach, sera of 25 OSCC patients and 25 healthy controls were subjected to 2-DE and Western blotting, whereas 6 pairs of extracted proteins from OSCC and their adjacent non-malignant tissues were subjected to label free LC-MS. Lastly, functional enrichment and pathway analysis were performed on the identified potential biomarkers using ConsensusPathDB, DAVID v6.8 and STRING v10.1 to elucidate the biological function and pathways associated with OSCC. Our sequencing analysis identified 50 somatically mutated genes in OSCC of which *CASP8*, *USP40*,

*NOTCH1*, and *COL11A1* were further evaluated as candidate genes. Our proteomic analysis identified a total of 27 differently expressed proteins among which LRG, A1BG, PRO2044, ACTBM, HBB, CRNS1, HBA, F8WAH6 and SCND3 were found to be uniquely expressed in OSCC when compared with other cancers. Based on the functional enrichment analysis, the most significant biological function of these biomarkers was their involvement with exosomes in the extracellular region, whereas the most significant pathway identified was the platelet activation, signalling and aggregation pathway. Both findings indicate their important role in cancer metastasis. In summary, our study had successfully identified a combination of 13 novel potential biomarkers and further improved our current understanding on the biological functions and pathways associated with OSCC. However, further studies are required to validate these biomarkers in a larger cohort and to fully understand the role of these biomarkers in OSCC.

## Type-2 diabetes mellitus (T2DM) patients carry different periodontal microbiota

Oral : OR-14  
Date : 15/08  
Session : 11<sup>00</sup>-11<sup>15</sup>

Salekul Islam<sup>1\*</sup>, Masud Rana<sup>1</sup>, Umme Laila Urmi<sup>1</sup>, Fahmida Sultana<sup>1</sup>, Nusrat Jahan<sup>1</sup>, Billal Hossain<sup>1</sup>, Samiul Iqbal<sup>2</sup>, Azizur Rahman<sup>3</sup>, Donald James Gomes<sup>4</sup>, Abu Syed Md. Mosaddek<sup>5</sup> and Shamsun Nahar<sup>1</sup>,

<sup>1</sup>Department of Microbiology; <sup>3</sup>Department of Statistics, Jahangirnagar University, Savar, Dhaka-1342;

<sup>2</sup>Department of Oral Maxillofacial Surgery, BSMMU, Dhaka-1210; <sup>4</sup>Department of Microbiology, Dhaka University, Dhaka-1000; <sup>5</sup>Department of Pharmacology, Uttara Adhunik Medical College, Uttara, Dhaka, Bangladesh.

\*salekul@juniv.edu

Oro-dental diseases are found closely interlinked to non-communicable diseases, such as, pancreatic cancer, diabetes, cardiovascular diseases (CVD), rheumatoid arthritis, and pulmonary disorders. We took initiative to study oral health microbiology focusing patients of Type-2 Diabetes Mellitus in Bangladesh. We enrolled 17 study patients (five diabetic and 12 non-diabetic) between 20 to 50+ years of age, who attended Dhaka Dental College Hospital. Over 60% of the patients were male and more than 80% were married. About 90% of the recruited cases were from urban area of Dhaka city and nearby towns. We isolated 13 aerobic bacteria from 5 diabetic patients and 27 isolates from 12 non-diabetic participants. We have completed biochemical assessment of the isolates. Anaerobic identification remained inconclusive be-

cause of lacking of proper reference biochemical results for anaerobes in literature. Among aerobic isolates, *Lactococcus spp* and *Staphylococcus spp* were prominent based on conventional biochemical tests. We did 16S rRNA gene sequencing of nine dental isolates: six from diabetic group and three from non-diabetic, to confirm the bacteria up to species level. *Ochrobactrum anthropi* and *Enterobacter cloacae* were identified exclusively in diabetic patients. Our primary findings attest diabetic patients harbor different oral microbiota than non-diabetic subjects. We have evaluated antimicrobial resistance (AMR) properties of the bacteria isolated under this investigation.



## Oral histoplasmosis in Malaysia: a retrospective analysis of cases reported in Stomatology Unit, Institute for Medical Research during 1995-2016.

Oral : OR-15  
Date : 15/08  
Session : 11<sup>15</sup>-11<sup>30</sup>

Noratikah Awang Hasyim<sup>1\*</sup>, Ajura Abdul Jalil<sup>2</sup> and Lau Shin Hin<sup>2</sup>

<sup>1</sup>Department of Oral & Maxillofacial Clinical Sciences, Faculty of Dentistry, University of Malaya, 50603, Kuala Lumpur, Malaysia

<sup>2</sup>Stomatology Unit, Cancer Research Centre, Institute for Medical Research (IMR), Kuala Lumpur, Malaysia

\*atikah\_ng@yahoo.co.uk

Histoplasmosis is a systemic fungal infection caused by inhalation of *Histoplasma capsulatum*, which is mainly found in bird and bat droppings. Oral manifestation of histoplasmosis may be the only initial manifestation of the disease or associated with chronic disseminated histoplasmosis. This study is the updated overview of oral histoplasmosis cases in Malaysia. The objective of the study was to review and describe clinical and demographic profile of oral histoplasmosis in Malaysia and to correlate histopathological features of oral histoplasmosis with patient's immunity status. We reviewed oral histoplasmosis cases diagnosed in Stomatology Unit, Institute for Medical Research (IMR), Kuala Lumpur from 1995 until 2016. The data was retrieved from the Oral Pathology Information system (OPIS) Stomatology Unit, IMR, which is the largest oral pathology database in Malaysia. Information regarding patients' sociodemographic data, medical illness, clinical presentation, histopathological features, and

referring healthcare institutions was extracted from the clinical information which accompanied the biopsy request form. A total of 39 cases of oral histoplasmosis were identified from 1995-2016. Majority of them were male (89.7%). The age ranges from 29 to 85 years with mean age of 57.8 years. Almost half of them were Malay (51.3%), followed by Chinese (33.3%), Indians (7.7%), and other races (7.7%). The most common sites of oral histoplasmosis were tongue, gingiva, palate, and alveolar ridge. The main clinical presentation was ulcer (61.5%) whereas 38.5% presented clinically as swelling. 17.9% of patients were seropositive for human immunodeficiency virus (HIV), 12.8% had tuberculosis, 10.3% had diabetes mellitus, and 2.6% with hepatitis C. The incidence of oral histoplasmosis should raise suspicion of hidden immunodeficiency and may be the first manifestation of acquired immunodeficiency syndrome (AIDS). Early recognition and diagnosis is crucial to reduce risk of morbidity and mortality.

## Periodontitis associated with disease activity, immune aging and inflammatory cytokine of Systemic Lupus Erythematosus patients.

Oral : OR-16  
Date : 15/08  
Session : 11<sup>30</sup>-11<sup>45</sup>

Nanda Rachmad Putra Gofur<sup>1\*</sup>, Nurdiana<sup>2</sup>, Kusworini Handono<sup>3</sup> and Handono Kalim<sup>4</sup>

<sup>1</sup>Dept of Biomedical Science, <sup>2</sup>Dept of Pharmacology, <sup>3</sup>Dept of Clinical Pathology, <sup>4</sup>Dept of Internal Medicine, Faculty of Medicine – Universitas Brawijaya, Malang Indonesia

\*nanda.gofur@gmail.com

**Background:** Periodontitis was reported to be found in SLE patients than healthy controls and was related to the aging of immune system. Expression of IL-2, IL-10 and IFN $\gamma$  were associated with increased apoptosis, activated effector cells, changes in signaling and complement systems, causing cross-reactions or even new reactivity to other autoantigens contributing to tissue damage. **Objectives:** To analyze correlation between periodontitis severity with disease activity, dsDNA antibody, IL-2, IL-10 and expression in SLE patients. **Methods:** Subjects were 61 patients with SLE (age 17-51 years; SLEDAI score 0-44) collected from Dr. Saiful Anwar General Hospital, Malang Indonesia. Periodontitis severity was measured using Periodontal Index (PI) criteria. Expression of dsDNA antibody, IL-2, IL-

10 and IFN $\gamma$  were examined using ELISA. **Result:** Clinical manifestations of periodontitis were bleeding gum 88.3%, high calculus index 44.9%, found periodontal pocket 73.8% and loose teeth 13.2% among patients. PI score patients was  $2.64 \pm 4.62$ . There were significantly positive correlation between PI score and SLEDAI score ( $r:0.812$ ;  $p = 0.000$ ), with dsDNA antibody expression ( $r:0.775$ ;  $p=0.000$ ), IL-2 expression ( $r:0.854$ ;  $p=0.000$ ), IL-10 expression ( $r:-0.859$ ;  $p=0.000$ ), and IFN $\gamma$  expression ( $r:0.625$ ;  $p=0.000$ ). **Conclusion:** Our study showed that the severity of periodontitis were associated with SLE disease activity, and biomarker of immune aging.

**Keywords:** Periodontitis; SLEDAI; dsDNA antibody, IL-2, IL-10, IFN $\gamma$



## Anticariogenic properties of *Solanum ferox* L. ethanol extract

Oral : OR-17  
Date : 15/08  
Session : 14<sup>00</sup>-14<sup>15</sup>

Siti Zaleha Raduan\*, Khairah Nasrin Abdul Khalid, Mark Fitchell Ak Jihek, Sivagami A/P Ganasan, Umi Syazana Salim, Muhammad Wahizul Haswan bin Abdul Aziz

Department of Paraclinical Sciences, Faculty of Medicine and Health Sciences, UNIMAS, 94300 Kota Samarahan, Sarawak

\*rszaleha@unimas.my

*Solanum ferox* L. is a plant species which belongs to the Solanaceae family and the genus Solanum. The Solanum genus was found to exhibit anticariogenic activity and was traditionally used to treat oral diseases. However there are no scientific studies done specifically for *Solanum ferox* L. Hence the aim of the study is to determine the anticariogenic properties of flesh and leaf of ethanol extract of *Solanum ferox* L. Alkaloids, flavonoids and tannins were detected in the leaf ethanol extract via preliminary phytochemical screening. The presence of these phytochemicals may contribute to the anticariogenic activity. Treatment with different concentrations of flesh and leaf of ethanol extract were used against *Streptococcus pyogenes* and *Staphylococcus aureus* via the

method of agar well diffusion to indicate zones of inhibition. The antibiofilm activity of the flesh and leaf ethanol extracts was tested. The flesh and leaf ethanol extracts possess significant ( $p < 0.05$ ) dose-dependent on antimicrobial activity and positive antibiofilm activity against respective pathogens. Flesh ethanol extract has stronger anticariogenic activity compared to leaf ethanol extract against *Staphylococcus aureus*. *Streptococcus pyogenes* exhibited higher susceptibility as compared to *Staphylococcus aureus*. In conclusion, it has been shown that the ethanol extract of *Solanum ferox* L. exhibit anticariogenic properties against *Streptococcus pyogenes* and *Staphylococcus aureus*.

## Therapeutic role of honey in oral health and its anti cancer activity

Oral : OR-18  
Date : 15/08  
Session : 14<sup>15</sup>-14<sup>30</sup>

May Ameen Alkoshab<sup>1\*</sup>, Aied Mohammed Alabsi<sup>1,2</sup>, Marina Mohd Bakri<sup>1</sup>

<sup>1</sup>Department of Oral & Craniofacial Sciences, Faculty of Dentistry, University of Malaya, 50603, Kuala Lumpur;

<sup>2</sup>Department of Oral Biology and Biomedical Sciences, Faculty of Dentistry, MAHSA University, 42610 Jenjarom, Selangor, Malaysia

\*dr.mayameenalkoshab@yahoo.com

For centuries, honey has been widely used to treat many types of ailments due to its medicinal and health promoting properties. It contains several types of phytochemicals that contribute to its many therapeutic properties such as; antimicrobial agent, natural booster of the immune system and its capability to avoid cancer development. The aim of this study was to evaluate the chemo preventive activity of the Malaysian jungle Tualang Honey (TH) following oral carcinogenesis in an animal model induced by 4-nitroquinoline-1-oxide (4NQO). A total of 28 male Sprague-Dawley (SD) rats were randomized into four groups (n=7 per group) as follows: Group 1 (non-treated group), Group 2 received 4NQO during 8 weeks in drinking water (control), Group 3 and 4 received 4NQO for 8 weeks in drinking water and treated

with TH 1000 mg/kg and 2000 mg/kg by oral gavage for 10 weeks. All rats from all experiments were sacrificed after 22<sup>nd</sup> week, and the incidence of oral neoplasms and histopathological changes were microscopically evaluated. In the 4NQO (induced cancer) group, the incidence of OSCC (oral squamous cell carcinoma) was 85.7%, while in rats treated with TH at 1000 mg/kg and 2000 mg/kg, the incidence of OSCC was statistically decreased at 28.6% and 14.6% respectively. Results of the present study indicate that Tualang honey may be effective in the chemoprevention of human oral cancer and further studies would be required to further elucidate their mechanism of action in the prevention of cancer.



## Maxillary sinus squamous cell carcinoma with superimposed mycosis: a surgical dilemma

Oral : OR-19  
Date : 15/08  
Session : 14<sup>30</sup>-14<sup>45</sup>

Jonathan Rengarajoo<sup>1</sup>, Kathreena Kadir<sup>1\*</sup>, Siti Mazlipah Ismail<sup>1</sup>, Thomas George Kallarakkal<sup>1</sup>

<sup>1</sup>*Department of Oral & Maxillofacial Clinical Sciences, Faculty of Dentistry, University of Malaya, 50603, Kuala Lumpur*

\*kathreena@um.edu.my

Malignancy of the maxillary sinuses are rare, commonly presenting with aggressive local tissue involvement and is known to have guarded prognosis. They account for less than 10% of the head and neck cancers, in which 80% is squamous cell carcinoma (SCC). Fungal infection of the maxillary sinus on the other hand, presents in multiple dimension from the innocent to the rapidly fatal disease, in which correct diagnosis, classification and prompt effective treatment is paramount. A case of advanced SCC of the maxillary sinus with superimposed deep seated fungal infection in an immunocompromised (Diabetes Mellitus) patient is discussed. In view of a similar clinical presentation of both the invasive fungal infection and SCC of the maxillary sinus, coming up with a

definitive treatment plan was a clinical dilemma in this patient. Radiological imaging showed resorption of the anterior maxillary sinus wall and floor of orbit with extension to the infratemporal fossa, consistent with deep seated fungal infection and SCC. Patient was started with intravenous anti-fungal and surgical debulking of the mass over the maxillary sinus was preformed to obtain a deep margin biopsy to correlate with initial biopsy. Second biopsy was reported as SCC – moderately differentiated with no evidence of mycosis. In conclusion, a high index of suspicion is warranted in managing fungal infection as it is curable if treated early, as compared to SCC.

## A mystery of the ordinary: a case report on recurrent oral ulcers.

Oral : OR-20  
Date : 15/08  
Session : 14<sup>45</sup>-15<sup>00</sup>

Nazirul Yussof\*, Palasuntharam Shanmuhasuntharam

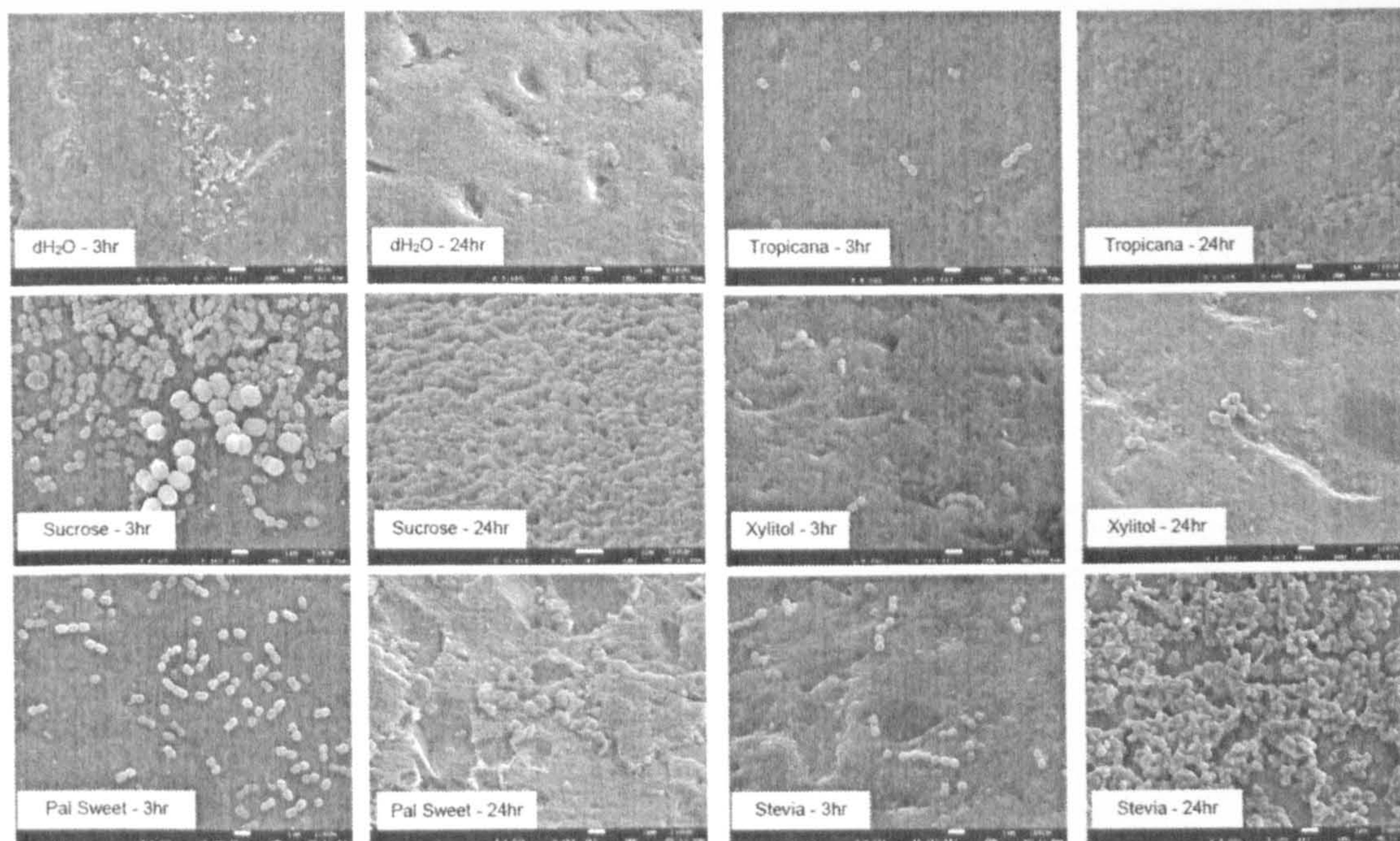
*Department of Oral and Maxillofacial Clinical Sciences, Faculty of Dentistry University of Malaya, 50603 Kuala Lumpur, Malaysia*

\*nazirulyussof@gmail.com

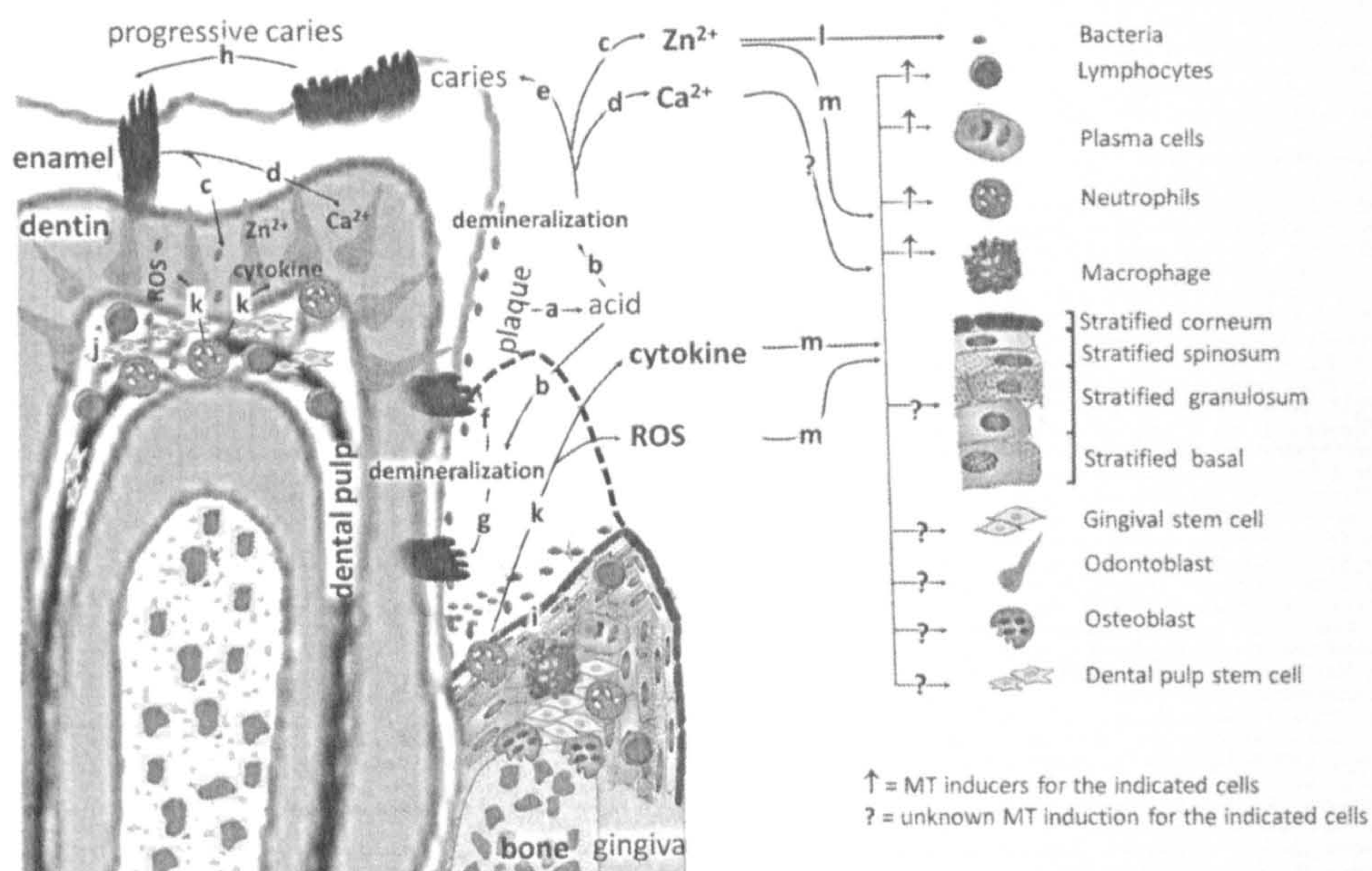
Majority of the recurrent oral ulcers are aphtous, or caused by trauma. It is also a substantiated fact that a wide range of mucocutaneous or systemic disorders, including infections, and drug interactions may manifest as recurrent oral ulcers. A diagnosis requires complete history taking, supported by appropriate clinical investigations and if necessary, a histopathological examination. We present a case of a 36 years old lady, who has been inflicted with severe recurrent oral ulcers,

along with skin ulcers at the limbs and genitalia, since 2009. Patient presented with microstomia due to fibrous bands and fusion of the upper and lower lips, along with deformed right foot and contracture of the left ring finger secondary to the recurrent ulcerations. Despite exhaustive efforts by multiple treating physicians, unfortunately, the diagnosis has remained elusive until today.





**Alternative sweeteners influence the biomass of oral biofilm.** The micrographs shows reduced adherent oral streptococci to experimental 3 and 24 hr-biofilms following repeated treatments to Pal Sweet®, Equal Stevia®, Tropicana Slim® and Xylitol, as compared to sucrose (6000x). In addition, minimal presence of biofilm mass was only observed following treatments with Equal Stevia®. *Reference: Abdul Razak et al. (2017). Arch Oral Biol. 80:180-184.*



**Zinc and Metallothionein in the Development and Progression of Dental Caries.**

*Reference: Rahman et al. (2018). Biol Trace Elem Res. DOI: 10.1007/s12011-018-1369-z*



## Aphthous stomatitis worsened by chemical irritation of traditional medicine: a case report

Poster : P-01  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Ayu Fresno Argadianti<sup>1</sup>, Hening Tuti Hendarti<sup>2</sup>, Desiana Radithia<sup>2</sup>

<sup>1</sup>Resident of Oral Medicine Specialist Programme; <sup>2</sup>Lecturer of Oral Medicine Department, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

\*ayufresno@gmail.com

Background: aphthous stomatitis is an inflammatory condition of unknown etiology characterized by painful ulcerations of oral mucosa, which persist for 7 to 14 days. Many factors can contribute to its formation, one of them is local trauma. Treatment aims to relieve pain, eliminate source of trauma, and promote healing. Objective: This article presents a case of aphthous stomatitis worsened by chemical irritation of traditional medicine. Case: a 64-year-old male complained of painful mouth sore on the lower left gums since about a week earlier. The patient dabbed a liquid traditional medicine to relieve the pain. The pain reappeared and had not subsided. Patient showed normal vital signs except VAS (visual analog scale) score 6/10 for oral pain. Extra oral examination was normal, while intra oral examination showed a solitary ulcer measuring 1x1.5 cm in the mucobuccal fold of lower left premolars, with elevated border without induration and painful. Management: Management included thorough anamnesis to obtain the aggravating factor, clinical examination, debridement of the lesion to remove non-viable tissue, and application of topical medications containing chlorine dioxide gel. Patient was instructed to stop applying the traditional medicine and use the medication prescribed. The lesion healed completely in 13 days. Conclusion: aphthous stomatitis can be worsened by chemical irritation. Anamnesis, clinical examination, debridement of lesions and appropriate drug delivery can help to determine the diagnosis and provide effective treatment.

## Management of herpes labialis recurrent without antiviral in young adult patients

Poster : P-02  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Hasrul Husain<sup>1\*</sup>, Bagus Soebadi<sup>2</sup>, Desiana Radithia<sup>2</sup>

<sup>1</sup>Resident of Oral Medicine Specialist Post Graduate Programme, <sup>2</sup>Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

\*alloefkg\_06@ymail.com

Introduction: Recurrent Herpes Labialis is a lesion caused by reactivation of primary herpetic infections by Human Herpes Virus 1 (Viral Herpes Simplex 1) latent in the nerve ganglion. This recurrent infection can occur 20-40% in individuals who have previously been infected with herpes simplex. This lesion originally appeared in the form of vesicles at the vermilion border and the perioral then burst into a ulcer covered with yellowish crust. Lesions usually heal within 7-14 days without leaving scarring. Case: a 22-year-old male patient complained of canker sores on the upper and lower lips. Initially the vesicles appeared 5 days ago on the upper and lower lip then broke 2 days later until bloody. 1 week ago patients follow social event for 7 days followed by mountain climbing activities. Clinical features indicate the presence of blackish brown crusts in upper and lower lip borders, clear borders, irregular edges, normal surrounding areas, painful. Discussion: Based on anamnesis and clinical feature then supported by result of serum IgG Anti HSV1 examination hence can be made by diagnosis of herpes labialis with differential diagnosis of Erythema Multiforme (EM). Lesions are treated with topical nonsteroidal anti-inflammatory and multivitamins to speed healing of lesions. Conclusion: The diagnosis of recurrent labialis herpes may be established based on prior history of disease and history of illness and clinical presentation of the lesion. To help diagnose the diagnosis can be done serum IgM Anti HSV 1 and IgG Anti HSV1. In this case only treated with topical anti-inflammatory and multivitamin anti-inflammatory drugs while antiviral drugs are not given because antiviral considerations are only effective in the prodromal period until the appearance of vesicles.



## Characterization and optimization of titanium-hydroxyapatite composites using bioactive glass

Poster : P-03  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Mohamed Abdulmunem<sup>1\*</sup>, Muralithran G. Kutty<sup>1</sup>, Wan Haliza Abd Majid<sup>2</sup>, Ali Dabbagh<sup>1</sup>, Noor Hayaty Abu Kasim<sup>1</sup>, Noor Azlin Yahya<sup>1</sup>, Hadijah Abdullah<sup>1</sup>

<sup>1</sup>Department of Restorative Dentistry, Faculty of Dentistry; <sup>2</sup>Department of Physics, Faculty of Science; University of Malaya, 50603 Kuala Lumpur, Malaysia

\*mohamadjasem@yahoo.com

**Objectives:** To optimize the properties of different ratios of Titanium- Hydroxyapatite composites by using various ratios of Bioactive Glass material in the air atmosphere and vacuum furnaces. **Methods:** Bioactive glass (containing; SiO<sub>2</sub>, NaO, CaO, B<sub>2</sub>O<sub>3</sub>, P<sub>2</sub>O<sub>5</sub>, CaF<sub>2</sub>, MgO, TiO<sub>2</sub>) was prepared and added in three different ratios (5%, 10%, and 15%) to 5 different layers of Ti-HA composites. Powders were prepared, milled, pressed, sintered and checked visually. After that, the optimum ratio of bio-active glass was added to Ti-HA composites and divided into two groups each one containing five layers. Samples in Group 1 were sintered with air atmosphere furnace, while samples in group 2 were sintered with the vacuum furnace and then all groups were tested chemically, physically and mechanically using; XRD, Micro-hardness and compression test. Density and modulus of elasticity were evaluated too. **Results:** Ti-HA composites that incorporated with 10% ratios of BG showed to be stable, cracks free, optimal and must satisfying results compared to Ti-HA containing other BG ratios which were full of cracks and fractures. In the second test, samples sintered in group 1 (air atmosphere furnace) showed a significant difference (p= 0.000) compared to group 2 (vacuum furnace) in term of compression and micro-hardness tests. In term of XRD test; Group 1 showed that Ti, HA were the major phases and minimum amount of Titanium was oxides to Ti<sub>2</sub>O. Whereas, in Group 2 it showed that main phases were related to HA and minor phases decomposed to TCP and TTCP.

**Conclusion:** 10% BG was the most suitable ratio to be added to Ti- HA composite compared to other ratios. Sintering Ti- HA- BG composites using air atmosphere furnace showed better chemical, physical and mechanical results compared to those sintered in vacuumed one.

## Management of allergic stomatitis with gastroesophageal reflux disease (GERD)

Poster : P-04  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Meilia Aquina Hakim<sup>1\*</sup>, Diah Savitri E.<sup>2</sup>, Priyohadi<sup>2</sup>

<sup>1</sup>Resident Oral Medicine Specialist Program; <sup>2</sup>Faculty of Dental Medicine, University of Airlangga, Surabaya, Indonesia

\*meilia.aquina.hakim@gmail.com

**Introduction:** aphtous stomatitis due to allergic reaction to the oral mucous membrane occurring because mucosa is in contact against causative agent is called allergic stomatitis. Gastroesophageal Reflux Disease is a pathological condition as a result of gastric contents reflux into esophagus that cause various intra or extraesophageal symptoms such as in oral cavity, one of which is oral stomatitis. **Case:** 18 year old male patient complained recurrent thrush since 6 months ago with no lesion free period. Already treated with Amoxicillin and borax glycerine but recurrence persists. Patients have other complaints of itchy nails since 6 months ago as well as frequent belch, nausea, and chest that feels burn. Complete blood test obtained results low leucocytes, lymphocytes, monocyte, eosinophil and high total IgE. Skin Prick Test show allergies to inhalants of dust, dog and cat fur, cotton, duck white eggs, shrimp, pindang, and chocolate. Treatment with NSAID gel drugs by oral medicine dentists, antihistamines, analgesics and multivitamins by ENT specialists, and steroids, antiemetics, and proton pump inhibitors by internal medicine specialist. **Discussion:** allergic reactions are initiated by bonding allergens and IgE antibodies that have been attached to high affinity receptors (FcεRI) expressed on mast cells and basophils. The cross-linking allergens with receptors triggers degranulation thereby releasing mediators such as histamine, prostaglandin, leukotrien which increase various manifestations including oral stomatitis. GERD occurs when there is an imbalance between offensive and defensive factors of the reflux material. Reflux of the gastric contents into the oral cavity in contact with the oral mucosa where the acidity level exceeds the level of the oral mucosal defense causes aphtous stomatitis. **Conclusion:** allergic stomatitis with GERD has non-specific clinical features so that its management needs to be adjusted for its predisposing factor, by multidisciplinary team approach.



## Analysis of intestinal dysbiosis in murine model of food allergy

Poster : P-05

Date : 14/08

Session : 16<sup>00</sup>-17<sup>00</sup>

Shohei Matsui<sup>1\*</sup>, Hideo Kataoka<sup>2</sup>, Hirotaka Kuwata<sup>3</sup>

<sup>1</sup>Department of Oral Microbiology and Immunology; <sup>2</sup>Department of Oral Microbiology and Immunology;

<sup>3</sup>Department of Oral Microbiology and Immunology, School of Dentistry, Showa University

\*shohei430@dent.showa-u.ac.jp

Purpose: Dysbiosis of gut microbiota is thought to induce onset of food allergy. In this study, to analyze relevance between intestinal microbiota and allergic symptoms, we made food allergy model mice and examined their intestinal microbiota. Materials & Methods: Murine food allergy model was developed intraperitoneal injections of ovalbumin (OVA) mixed with aluminum hydroxide gel (Alum) to female BALB/c mice. These mice were orally administrated OVA to induce food allergy. Fecal bacteria of these mice were analyzed by VITEK MS MALDI-TOF MS analysis. Expression of il33 in colon26 cells was detected by real time PCR. Results & Conclusion: In murine model of food allergy, intestinal allergic symptoms changed formation of gut microbiota, and increased Citrobacter sp. which is not dominant in the normal intestinal flora. Citrobacter sp., proliferated in Th2-dominant intestine, aggravated food allergic symptoms through inducing intestinal epithelial-derived IL-33 expression. These results suggest that intestinal dysbiosis can effect immune response of whole body including oral cavity.

## Management of primary herpetic gingivostomatitis in child

Poster : P-06

Date : 14/08

Session : 16<sup>00</sup>-17<sup>00</sup>

Nur Tsurayya Priambodo<sup>1\*</sup>, Desiana Radithia<sup>2</sup>, Priyo Hadi<sup>2</sup>

<sup>1</sup>Resident of Oral Medicine Specialist Programme; <sup>2</sup>Lecturer of Oral Medicine Department, Faculty of Dental Medicine, Universitas Airlangga

\*ntsurayya@gmail.com

Background: Primary herpetic gingivostomatitis (PHGS) is a viral infection caused by type I herpes simplex virus (HSV). This condition has a clinical manifestation of multiple ulceration that spreads in the oral cavity and begins with prodromal symptoms. PHGS is more common in children. Transmission can occur through direct contact or droplet from an infected individual. PHGS has the nature of self-limiting disease so that the given therapy aims to improve the body's ability to eliminate disease and minimize in case of recurrence. Objective: This case report aims to discuss the diagnosis and management of cases of PHGS occurring in children initially suspected of oral sprue. Case: a 3-year-old female patient came from her mother to the Poli Ilmu Penyakit Mulut Rumah Sakit Gigi dan Mulut Universitas Airlangga Surabaya with complaints of canker sores and spread in the oral cavity. From anamnesis known to fever patients 2 days earlier and a few days before that patients playing with neighbors who experienced similar conditions. Complete blood examination showed an increase in leukocytes, sedimentation rate of blood and lymphocytes. Serological testing of IgM anti HSV-1 showed reactive results. Management: Patients prescribed acyclovir for 7 days, systemic antipyretics, vitamins, immunomodulators and Aloe vera extract spray. Patients recover within 7 days. Conclusion: PHGS is common in children and can not be underestimated. Anamnesis as well as careful clinical examination is the key to establishing the correct diagnosis and treatment so as to speed up the patient's recovery.



## Management of stomatitis alergica due to cow's milk allergy in children

Poster : P-07  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Eben Ezer Lebang<sup>1\*</sup>, Desiana Radithia<sup>2</sup>, Priyo Hadi<sup>2</sup>

<sup>1</sup>Resident of Oral Medicine Specialist Post Graduate Programme, <sup>2</sup>Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

\*ebenezerlebang@yahoo.co.id

Allergic stomatitis is a hypersensitivity reaction caused by allergens. In children, one of the most common causes of allergen is cow's milk. The prevalence of cow's milk allergy is reported to be 0.6 to 2.5% in preschoolers, 0.3% in children ages between 5 to 16 and less than 0.5% in people adult. The aims of case report to report the management of allergic stomatitis caused by cow's milk. **Case:** Patients 3 years old boy come to oral medicine clinic of RSGM Airlangga university with chief complaints of many ulcer in the oral cavity. Mother of the patient said her boy never get a lot of ulcers like this before, no history of allergies, and there was a history of changed of milk formula. From intra-oral examination there are multiple ulcer of the buccal mucosa, labial mucosa, tongue and erythema of painful gingival margins. **Discussion:** Based on anamnesis and clinical features then supported by result of clinical pathology laboratory examination total IgE of patient is 261.7 IU/ml (normal value: < 100 IU/ml), specific serum antibody serum levels with cow's milk < 0.7 kU / l and nBos d4 Cow milk < 3.5 kU / l. Patients were instructed to avoid cow's milk and replace it with soya milk. Patients were given chlorine dioxide mouthwash used 4 times a day. **Conclusion:** Cow's milk is one of the allergy sources in children, and the protein that contain in cow's milk:  $\beta$ -lactoglobulin,  $\alpha$ -lactalbumin, casein, bovine serum albumin, and bovine immunoglobulins are the proteins that have responsibility for this allergy. Not consuming cow's milk and it products is the only effective strategy to avoid this allergy.

## Progresive chronic periodontitis caused By *Klebsiella pneumoniae* induces lung abcsess in hyperthiroid crisis patient

Poster : P-08  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Titis Desiandrin<sup>1\*</sup>, Priyo Hadi<sup>2</sup>, Adiastuti Endah Parmadiati<sup>2</sup>

<sup>1</sup>Resident of Oral Medicine Specialistic Programme; <sup>2</sup>Lecturer of Oral Medicine Department, Faculty of Dental Medicine, Universitas Airlangga

\*titis.desiandrin@gmail.com

Background: *Klebsiella pneumoniae* is a Gram-negative, facultative anaerobic, found in the normal flora of the mouth, skin, and intestines. These pathogenic bacteria can be associated with periodontal disease or respiratory pathogens. Poor oral health may increase susceptibility to adhesion and colonization by respiratory pathogens which are shed into the saliva and then is aspirated into the lower respiratory tract where an infection can ensue. Hyperthyroidism can induce severe periodontal disease because increasing susceptibility to periodontal alveolar bone loss. Patients with untreated hyperthyroidism are at increased risk for development of thyrotoxic crisis and this may be precipitated by oral infection. *Klebsiella Penumoniae* has a highg mortality rate of approximately 50%. When this bacteria is aspirated into the lower respiratory tract can cause necrotizing process in the lung (Lung Abscess). Aspiration from oral cavity is considered the major cause of lung abscesses as well as poor oral and dental hygiene (61%). Case: a 57-year-old woman complained of painful left maxillary gums for three month. The patient had received antibiotic treatment and gave no results and then referred to Dental Hospital Universitas Airlangga. Posterior left maxillary ginggiva: erosion, easy bleeding and pain. The left buccal fold mucosa: ulcer, elongated and painful. Neck: a clearly defined mass in the right and the left region, soft palpation, painless, immobilized. Discussion : Based on anamnesa and clinical examination, panoramic x-ray taken and found alveolar bone loss and then performed scrapping and no signs of malignancy,from fungi and bacteria culture found Candida Albicans and *Klebsiella pneumoniae* pathogens. Patient was treated with chlorhexidine digluconate and amoxiclav, eliminating local factors by referring to Oral Surgery for extraction 26, laboratory tests of TSH, T3 and T4, diagnosed hyperthyroidism with atrial fibrillation, patient was on thyroid storm stage. PA thorax examination results, suspect multiple pulmonary abscess. Conclusion: Untreated hyperthyroid for years causes severe periodontal disease and susceptible to infection of bacteria in this case is *Klebsiella Pneumonia* which is then aspirated from the oral cavity to the lungs resulting in abscesses in the lungs. Sepsis can induce hyperthyroid crisis and this can be life-threatening condition.



## Management of perioral dermatitis in RSGM Airlangga University- Surabaya Indonesia (Case Report)

Poster : P-09  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Novitasari<sup>1\*</sup>, Desiana Radithia<sup>2</sup>, Priyo Hadi<sup>2</sup>

<sup>1</sup>Resident of Oral Medicine Specialist Programme; <sup>2</sup>Lecturer of Oral Medicine Department, Faculty of Dental Medicine, Universitas Airlangga, Jl. Dr.Moestopo, Surabaya, Indonesia

\*nobitasari7676@gmail.com

Perioral dermatitis is a skin disorder of inflammation, occurring in young women and children with criteria of small papular lesions, vesicles, and pustules in the periorificial area, especially around the mouth. Dermatitis in adults affects women more. The cause of dermatitis is not known with certainty, presumably caused by various interrelated factors (multifactorial). Intrinsic factors include genetic predisposition, physiological abnormalities and skin biochemistry, immunological dysfunction, psychosomatic interactions and dysregulation / imbalance of the autonomic nervous system, while extrinsic factors include irritant and contaminant materials, inhaled allergies, food, microorganisms, temperature changes, trauma. In general the principle of treatment is similar and the main treatment is with corticosteroid preparations and avoiding the precipitating factors. In this case perioral dermatitis occurs in young women, age 20, with lips and around the lips itching and hot, occurring since 9 years ago and never healed. Based on laboratory examination, it is known that LED, Eosin, Lymposit, IgE total higher than normal, with Prick Tests known that the patient has allergy to food, dust, fur, kapok. Family history, mothers suffer from allergy to food. The habit of the patient, peeling and scratching the lips and surroundings using the nails as well as maintaining long nails. After treatment with an ointment containing hydrocortisone, lanolin, vaseline, for 8 days and avoiding allergens, itching and heat are no longer felt by the patient. Conclusions: Perioral dermatitis is a good prognosis by administering ointment containing hydrocortisone and avoiding allergens.

## A comparison of detectable levels and correlations of cytokine levels in saliva and plasma of leptospirosis patients

Poster : P-10  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Wan Shahrman Yushdie Wan Yusoff<sup>1\*</sup>, Maha Abdullah<sup>2</sup>, Zamberi Sekawi<sup>3</sup>, Fairuz Amran<sup>4</sup>, Syafinaz Amin Nordin<sup>3</sup>

<sup>1</sup>Department of Medical Laboratory Technology, Faculty of Health Sciences, Universiti Teknologi MARA Cawangan Selangor, Kampus Puncak Alam, 42300 Bandar Puncak Alam, Selangor; <sup>2</sup>Department of Pathology; <sup>3</sup>Department of Medical Microbiology and Parasitology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400, UPM, Serdang, Selangor; <sup>4</sup>Infectious Disease Research Centre, Bacteriology Unit, Institute for Medical Research, Kuala Lumpur, Malaysia

\*shahrimanuitm@gmail.com

Leptospirosis is a globally emerging zoonotic disease caused by bacteria of the genus *Leptospira*. Clinical manifestations of leptospirosis range from mild, self-limited flu-like illness to a life-threatening disease which can be fatal. Host immune response by increased levels of inflammatory mediators, such as cytokines promotes tissue damage that leads to disease severity. Therefore, cytokines levels might be helpful in predicting the outcome in leptospirosis hence may guide in the management of patients. Recently, many studies made on the potential application of saliva in laboratory diagnosis. This includes identification of the potential cytokines biomarkers in diseases, including infectious disease such as leptospirosis. However, there is limited information available on cytokines in saliva for leptospirosis patients. This study aimed to compare the levels of INF $\gamma$ , IL-6, IL-8, and TNF- $\alpha$  in the saliva and plasma samples of leptospirosis patients. We also investigated the correlations between the saliva and plasma expressions and between cytokines levels in salivary samples. The study consisted of simultaneously collected salivary and plasma samples from seven confirmed leptospirosis patients. Cytokines quantification was performed using Simple Plex™ platform. In general, the cytokines detection rate was similar in both saliva and plasma samples. Results for salivary IL-6 showed a positive significant correlation with plasma IL-6 ( $r = 0.860$ ,  $p = 0.013$ ) while demonstrating no correlation between salivary levels of INF $\gamma$ , IL-8, and TNF- $\alpha$  and their corresponding plasma. For comparison between saliva and plasma expression levels, only the salivary IL-8 was significantly higher than its plasma counterparts ( $P < 0.05$ ). With respect to the cytokines levels in the saliva, there was significant correlations between IL-6 and INF $\gamma$  ( $r = 0.768$ ,  $p = 0.044$ ), IL-6 and IL-8 ( $r = 0.931$ ,  $p = 0.002$ ), IL-6 and TNF- $\alpha$  ( $r = 0.767$ ,  $p = 0.044$ ), and IL-8 and INF $\gamma$  ( $r = 0.944$ ,  $p = 0.001$ ). This finding suggests potential applications of saliva to measure inflammations in leptospirosis patients, with notable correlations observed for IL-6 in saliva and plasma.



## Metagenomic assessment of the microbial shifts in type 2 diabetics with periodontitis

Poster : P-11  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Anis Rageh Al-Maleki<sup>1,2\*</sup>, Jamuna Vadivelu<sup>2</sup>, Wan Harun Himratul-Aznita<sup>3</sup> and Rathna Devi Vaithilingam<sup>1</sup>

<sup>1</sup>Department of Restorative Dentistry, Faculty of Dentistry; <sup>2</sup>Department of Medical Microbiology, Faculty of Medicine; <sup>3</sup>Department of Oral and Craniofacial Sciences, Faculty of Dentistry, University of Malaya, 50603 Kuala Lumpur, Malaysia.

\*almaleki2004@yahoo.com

Type 2 diabetes (T2D) is an important and progressively widespread disease in the population. Moreover, T2D is associated with the rise in the occurrence and development of periodontitis. Complete analysis of the microbiome linked with periodontitis in T2D is seldom investigated, causing a marked gap in the role of the periodontal microbiome in diabetics. Therefore, this study aimed to investigate the global biodiversity of the human oral microbiome and abundance differences by using the shotgun metagenomics on the oral subgingival plaque of nine Malaysian adults with periodontal disease and T2D using the Illumina HiSeq platform. CLC Genomics Workbench software was used for clustering, taxonomic profiling and functional analysis. Consistent with many previous reports, the most common genus of the human oral microbiome are *Veillonella*, *Prevotella*, *Streptococcus*, *Leptotrichia*, *Actinomyces*, *Corynebacterium*, *Neisseria*, *Porphyromonas*, *Selenomonas* and *Fusobacterium*. It is interesting to note that while *Veillonella*, *Prevotella* and *Streptococcus* were the predominant family in patients with periodontal disease and T2D, the proportion of *Veillonella* and *Leptospira* to other major genus was more evenly distributed in patients with periodontally diseased and healthy T2D. In addition, *Capnocytophaga*, an opportunistic Gram-negative periodontal pathogen, was also found in the oral bacteria of these patients. Moreover, several pathways playing roles in disease were identified in periodontally diseased and healthy T2D compared to healthy controls. This study highlights the potential complexity of the human oral microbiome comprising of various prokaryotes, as well as different viruses. Findings from this study will serve as a basis for future studies to investigate the interaction between oral microbiota and viruses and diseases.

## In vitro effect of plant extracts mixture and its individual constituents in reducing bacterial population in single- and dual-species biofilms

Poster : P-12  
Date : 14/08  
Session : 16<sup>00</sup>-17<sup>00</sup>

Zaleha Shafiei<sup>1,2\*</sup>, Zubaidah Haji Abdul Rahim, Hashim Yaacob<sup>2</sup>, Koshy Philip<sup>3</sup>, Nalina Thurairajah<sup>4</sup>

<sup>1</sup>Centre of Craniofacial Diagnostic and Biosciences, Faculty of Dentistry, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300; <sup>2</sup>Dean's office, Department of Oral and Craniofacial Sciences, Faculty of Dentistry, <sup>3</sup>Institute of Biological Sciences, Faculty of Science, University of Malaya, 50603; <sup>4</sup>Centre for Pre-U studies, UCSI University, No.1, Jalan Menara Gading, UCSI Heights, Cheras, 56000, Kuala Lumpur, Malaysia.

\*zaleha74@siswa.um.edu.my

Oral biofilm is the initial stage in the development of oral diseases such as dental caries and periodontal disease. This study was conducted to investigate the *in vitro* effects of a plant extract mixture (PEM) containing *Psidium* sp., *Mangifera* sp. and *Mentha* sp. for their potential in reducing bacterial population of *Streptococcus sanguinis* ATCC BAA-1455 and *Streptococcus mutans* ATCC 25175 in single- and dual-species biofilms in a dynamic ecological niche. BHI broth and BHI-containing 1% sucrose were used to develop a 24-hour biofilm before and after meals. The antibiofilm assay was determined based on bacterial population retained in the treated biofilms expressed as the percentage of colony forming unit per ml (CFU/ml). All the plant extracts significantly reduced the bacterial populations of *S. sanguinis* and *S. mutans* in single- and dual-species biofilms in the absence and presence of sucrose. In normal condition, sucrose enhanced the growth of *S. mutans* (by 10<sup>7</sup> CFU/ml) and restricted *S. sanguinis* (10<sup>5</sup> CFU/ml) growth. However, the equal proportion (10<sup>6</sup> CFU/ml) of the two species of bacteria was observed in dual-species biofilms grown in the absence and presence of sucrose. PEM and *Mangifera* sp. effectively reduced *S. mutans* population in single- and dual-species biofilms grown in the absence of sucrose. In the presence of sucrose, PEM effectively reduced both types of bacterial populations in single-species biofilm but *S. mutans* was hard to remove compared to *S. sanguinis* in dual-species biofilms. Hence, it is suggested that PEM is a better candidate as an anticaries agent compared to individual constituents of the plant extracts contained in the PEM and therefore may be incorporated in oral healthcare products.



## Oral CRP and IL-6 levels of stroke survivors: a pilot study

Normaliza Ab Malik\*

Universiti Sains Islam Malaysia

\*liza\_arie2004@yahoo.com

Poster : P-13

Date : 14/08

Session : 16<sup>00</sup>-17<sup>00</sup>

**Objective:** The aimed of the study was to evaluate the levels of C-reactive protein (CRP) and interleukin-6 (IL-6) in the gingival crevicular fluid (GCF) of stroke survivors. **Methods:** a multi-centre cross-sectional study was conducted among hospitalised stroke survivors. Oral clinical assessments and functional dependency levels scores were performed. GCF samples were collected using absorbent papers and analysed using ELISA kit. Descriptive statistic and correlation analyses were performed using proportion and Spearman correlation coefficient test. **Results:** a total of 53 patients were recruited from five public hospitals. There was a significant correlation between CRP and IL-6 levels of GCF ( $P < 0.05$ ). A significant correlation was also observed between CRP levels in GCF with dental plaque percentage and functional dependency levels. There was no statistical significant correlation found between IL-6 levels in GCF with dental plaque percentage and functional dependency levels. Dental plaque scores were associated with CRP levels in GCF ( $P < 0.01$ ), and swallowing problem was the factor associated with IL-6 levels in GCF ( $P < 0.05$ ). **Conclusion:** The current observations on the significant association of inflammatory mediators in GCF with dental plaque and swallowing condition in stroke survivors suggest that oral/periodontal care should be reinforced for effective control of oral infections/inflammatory in this cohort of medically compromised individuals. Further study is warranted to explain the association between the level of oral inflammatory biomarkers and oral health among stroke population.

## Detection of E6/E7 transcripts of HPV16 in oral squamous cell carcinoma

Poster : P-14

Date : 14/08

Session : 16<sup>00</sup>-17<sup>00</sup>

Soma Sekhar Goud E V<sup>1\*</sup>, Shanthi Malleedi<sup>2</sup>, Anand Ramanathan<sup>3,4</sup>, Gou Rean Wong<sup>4</sup>, Rosnah Binti Zain<sup>1,3,4</sup>

<sup>1</sup>Department of Oral Pathology and Oral Medicine, <sup>2</sup>Department of Pediatric Dentistry, MAHSA University;

<sup>3</sup>Department of Oral & Maxillofacial Clinical Sciences, <sup>4</sup>Oral Cancer Research & Coordinating Centre (OCRCC), Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia

\*sekharmds@gmail.com

**Background:** The role of HPV in oral carcinogenesis is a controversial topic over decades. In Malaysia, only few studies have been carried out and have reported a wide range of HPV prevalence. Therefore the objective of this study is to detect the HPV16, E6 & E7 transcripts in oral squamous cell carcinoma (OSCC) tissues so as to provide additional evidence. **Methodology:** Fifty cDNA samples from frozen OSCC tissues were obtained from Malaysian Oral Cancer Tissue & Data Bank System (MOCTDBS) coordinated by OCRCC, Faculty of Dentistry, University of Malaya. Real-time PCR was performed using

HPV16, E6 & E7 specific primer pair. cDNA derived from Ca Ski cell line was used as positive control. **Results:** No HPV E7 transcript was detected in these 50 samples. However, trace amount of E6 transcripts were detected in 1 sample, which could be due to contamination. **Conclusion:** This is the first study in Malaysia to study the detection of HPV16, E6/E7 transcript in oral cancer. HPV16, E6/E7 positive oral cancer tissue was not detected in this study group, therefore suggesting that HPV infections do not have a role in oral carcinogenesis.



## Acid fast bacilli detected on oral swab sample of pulmonary tuberculosis patient

ePoster : EP-01  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Reiska Kumala Bakti<sup>1\*</sup>, Ni Made Mertaniasih<sup>2</sup>, Diah Savitri Ernawati<sup>1</sup>, Bagus Soebadi<sup>1</sup>, Priyo Hadi<sup>1</sup>

<sup>1</sup>Department of Oral Medicine, Faculty of Dental Medicine; <sup>2</sup>Department of Clinical Microbiology, Faculty of Medicine, Universitas Airlangga, Surabaya - Indonesia

\*reiska91@gmail.com

Tuberculosis (TB) is an infectious disease that remain as health problem worldwide. *Mycobacterium tuberculosis* as etiological agent, is transmitted via airborne droplet nuclei from tuberculosis patients. Oral health care worker or dental practitioner may be at high risk for TB infection because of their close proximity during dental treatment process. Simple and rapid screening of *Mycobacterium tuberculosis* in oral cavity is needed to be performed to prevent infection transmission. This study was aimed to investigate the presence of acid fast bacilli on buccal mucosa of pulmonary TB patient. Nineteen pulmonary TB patients, both sexes, age ranged from 19 – 74 years old participated in this study. Tuberculosis diagnosis was performed by clinical symptoms assessment and supporting examination, including acid fast bacilli on sputum examination. Two buccal mucosa swabs from pulmonary TB patients were collected for direct smear acid fast bacilli by Ziehl Neelsen staining. Concerning the *Mycobacterium tuberculosis*, acid fast bacilli presented on 10.5% of oral buccal mucosa swab of subjects, whereas in sputum specimens, bacilli were found in 52.6% of subjects. Acid fast bacilli could be found on buccal epithelial mucosa of pulmonary tuberculosis patient, although its presence was too low.

## Hyperplasia of Wistar rat's oral mucosa due to cigarette smoke exposure

ePoster : EP-02  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Hening Tuti Hendarti\*

Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, 60132, Surabaya, Indonesia

\*hening-t-h@fkg.unair.ac.id

Background: Cancer is a manifestation of cell malignancy during abnormal proliferation. Cancer is happened through a process called carcinogenesis. Hyperplasia is usually a sign that lead to carcinogenesis. Oral cancer is the 6th deadly case of cancer around the world. The most common etiology of oral cancer is tobacco and cigarette is the most well-known tobacco's product. Purpose: The purpose of this study was to understand how cigarette smoke initiates precancerous changes, which in this case is hyperplasia, of the oral mucosa epithelium in wistar rats. Method: The experimental animals were exposed to cigarette smoke with the following dose which was 2 cigarette per day. The experiment used post test only control group design. All samples were euthanized on the 4th and 8th week. All samples (30 wistar rats) were decapitated to examine the histopathology of wistar rat's tongue mucose. The sample need hematoxylin- eosin to show wether or not hyperplasia appeared. Results: after wistar rats were exposed to cigarette smoke, an increase amount of epithelial cell proliferation (hyperplasia) showed significantly difference with p-value <0.05 at 8th week. Conclusion: There is an increase amount of epithelial cell proliferation (hyperplasia) in wistar rat after exposed by cigarette smoke.



## Oral candidiasis as a leading sign to HIV diagnosis in transgender women and induced-drug users

ePoster : EP-03  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

**Desiana Radithia\***, Saka Winias, Reiska Kumala Bakti, Meircurius Dwi Condro Surboyo, Hening Tuti Hendarti, Bagus Soebadi, Kus Harijanti, Adiasuti Endah Parmadiati, Diah Savitri Ernawati  
*Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia*  
\*deisy.radithia@fkg.unair.ac.id

Background: Oral fungal infection, mostly caused by *Candida* spp., is the most common opportunistic infection in HIV/AIDS patients. In developing countries like Indonesia, where highly active antiretroviral therapy (HAART) is yet underdistributed, oral candidiasis still increases morbidity among AIDS patients. The pathogenesis is often associated to the immunodeficiency condition caused by the depletion of T-CD4<sup>+</sup> lymphocytes. However oral candidiasis has also been reported in patients with T-CD4<sup>+</sup> over 200 cells/mm<sup>3</sup> and has even been helpful in helping clinicians to suspect HIV infection in undiagnosed patients, at the same time monitoring the progress of HIV infection. Transgender women and induced-drug user (IDU) sober community are at the high risk of contracting HIV. Detection of oral opportunistic infection may serve as a leading sign for correct diagnosis. Purpose: This study aimed to confirm HIV diagnosis on transgender women and induced-drug user (IDU) community based on oral candidiasis finding. Methods: Diagnosis of oral candidiasis defined by clinical examination and laboratory confirmation on 52 members of a transgender women community and 55 members of induced-drug user (IDU) community. HIV rapid test and CD4<sup>+</sup> flowcytometry were performed on all patients. Results: Nineteen subject (17.76%) with oral candidiasis were diagnosed HIV positive and 11.11% of them have moderate CD4<sup>+</sup> level. Conclusion: Oral Candidiasis in high risk individuals may serve as a leading sign to HIV infection, however further approach must be conducted to define HIV diagnosis.

## Effect of oral cryotherapy on the prevention of oral mucositis and pain among colorectal cancer patients undergoing chemotherapy.

ePoster : EP-04  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Ros Idayu Mat Nawi<sup>1</sup>, **Ping Lei Chui<sup>1\*</sup>**, Wan Zamaniah Wan Ishak<sup>2</sup>, Caryn Mei Hsien Chan<sup>3</sup>

<sup>1</sup>Department of Nursing Science; <sup>2</sup>Clinical Oncology Unit, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur; <sup>3</sup>Faculty of Health Sciences, National University of Malaysia, 50603 Kuala Lumpur, Malaysia.

\*chuipinglei@um.edu.my

The evidence has been mixed about the benefits of mouthwash and oral cryotherapy in prevention of oral mucositis and pain during chemotherapy. The objective of the study is to evaluate the effect of oral cryotherapy on the prevention of oral mucositis and pain among colorectal cancer patients undergoing chemotherapy. In an experimental design study, a total of N=80 patients were randomly assigned to either intervention (n=40) or usual care group (n=40). The participants in the intervention group were given ice chips to hold in their mouths prior to, during, and after the infusion of chemotherapy followed by sodium bicarbonate mouthwash (3 times daily) post chemotherapy until the next cycle. The usual care group received only the sodium bicarbonate mouthwash post chemotherapy until the next cycle. Mucositis was graded based on the World Health Organization Mucositis Scale while pain was measured using 11-point numeric scale. A total of 72.5% and 27% of the participants in the intervention group reported no oral mucositis (grade 0) and mild oral mucositis (grade 1) respectively, whereas 95% of usual care participants reported ≥ grade 2 (moderate-to-severe) oral mucositis. Pain associated with oral mucositis was lower among participants in intervention group, with 67.5% reporting no pain, while 45% and 50% in the usual care group reported moderate and severe pain, respectively. There was a significant difference in mucositis grading and pain score between the intervention and usual care group. The use of ice chips followed by mouthwash could help to prevent oral mucositis and pain. The finding helps to shed light on evidence supporting the use of oral cryotherapy which is cost-effective and has few side effects as a preventive strategy. Evidence supports the continuation of a recommendation for the use of cryotherapy for the prevention of oral mucositis in patients receiving fluorouracil-based chemotherapy.



## Distribution Of *Candida Spp* in pulmonary tuberculosis patient In tb-dots at RSUD. Dr. Soetomo Surabaya with anti-tuberculosis drug (July-October 2017)

ePoster : EP-05  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Bagus Soebadi<sup>1\*</sup>, Natasya Radityarini<sup>2</sup>, Adiastuti Endah<sup>1</sup>, Hening Tuti Hendarti<sup>1</sup>, Saka Winias<sup>1</sup>, Nurina Febrianti Ayuningtyas<sup>1</sup>

<sup>1</sup>Department of Oral Medicine; <sup>2</sup>Undergraduate Student, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

\*bagussoebadi@gmail.com

Background: anti Tuberculosis Drug is a combination of medicine. The First Line drug such as Rifampisin, Pyrazinamid, Etambutolol, INH, and Streptomycin and the second line of drug such as Kanamycin, Kapreomycin and Etionamid used for treatment in Pulmonary Tuberculosis. Long-term used of Anti Tuberculosis Drug may increase the risk of oral candidiasis. *Candida Spp* might increase because of MDR1(Multi Drug Resistance 1) Receptor. Not only *Candida albicans* found in patients with this infected, but also non-*Candida Albicans* such as *Candida glabrata* and *Candida tropicalis* also. This research helped for proper anti-fungal treatments for *Candida* infection for each *Candida Spp*. Objective: To describe the distribution of *Candida Spp* in Pulmonary TB treated with Anti-Tuberculosis Drug in TB-DOTS RSUD Dr. Soetomo Surabaya. Methods: all patient examined by anamnesis and swabed on bucal mucosa and tongue, incubated in Saboraud Dextrose Agar (SDA) and Cornmeal Tween 80, *Candida* species identification with direct microscopic slide culture, glucose farmentated test , and CHROM Agar *Candida Candida*. Results: Distribution of *Candida* species was mostly *Candida albicans* followed by *Candida glabrata*. Conclusion: The distribution of *Candida albicans* was 83.3% (5 patients) in 40 years old, in female patients, with Anti -Tuberculosis Drug. *Candida Glabrata* distribution was 16.7% (1 patient) over 40 years old, in female patient, and with First Line of Anti-Tuberculosis Drug.

## The effect of cigarette smoke exposure on the alteration of dysplasia grade in tongue mucosal tissue of *Rattus norvegicus*

ePoster : EP-06  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Adiastuti Endah Parmadiati<sup>1\*</sup>, Muhammad Akbar Dermawan<sup>2</sup>, Priyo Hadi<sup>1</sup>, Diah Savitri Ernawati<sup>1</sup>, Hening Tuti Hendarti<sup>1</sup>, Desiana Radhitia<sup>1</sup>

<sup>1</sup>Department of Oral Medicine; <sup>2</sup>Undergraduate Student, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

\*oralmedicineairlangga@gmail.com

Background: Tobacco consumption is one of the major environmental factors that play a role in carcinogenesis. Cancer risk is not only possessed by active smokers, but also by passive smokers. Risk of several types of cancers, including lung cancer and oral cancer, increase in passive smokers. Microscopic observations are required to detect the oral potentially malignant lesions. Observations are conducted to see the morphological changes of tissue, which are known as dysplasia. Purpose: This research aims to investigate the risk of malignant transformation in the tongue mucosal tissue of Wistar rats (*Rattus norvegicus*) exposed to cigarette smoke by grading dysplasia on the mucosal tissue at the 4th and 8th week after the exposure began. Methods: Wistar rats were allocated into 3 groups: 1st treatment group exposed to cigarette smoke for 4 weeks, 2nd treatment groups exposed to cigarette smoke for 8 weeks, and untreated control group. The rat mucosal tissue of each group was examined histopathologically to determine the grade of dysplasia based on WHO 2005 classification. The grade of dysplasia was processed semiquantitatively and statistically analyzed. Results: Significant increase of dysplasia grade was observed in the 2nd treatment group compared to the 1st treatment group and the control group. The increase was also found in the 1st treatment group compared to the control group, but it was not significant. Conclusion: The tongue mucosal tissue of Wistar rats exposed to cigarette smoke for 4 and 8 weeks sustained the increasing grade of dysplasia.



## Anti cariogenic assay and in vitro anticancer activity of catechu extract against oral squamous carcinoma cell line (SCC-25 )

ePoster : EP-07  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Lakshmi T<sup>1\*</sup>, Ezhilarasan D<sup>1</sup>, Vijayaragavan R<sup>2</sup>

<sup>1</sup>Department of Pharmacology, Saveetha Dental College and Hospitals; <sup>2</sup>Director of Research, Saveetha institute of Medical and Technical Sciences, Chennai, Tamil Nadu, India – 600 077

\*adiasdc@saveetha.com

**Objective:** The objective of this study is to determine the anti cariogenic and anti cancer activity against oral squamous carcinoma cell line (SCC-25). **Methods:** anti cariogenic assay were performed against *S. mutans* using broth dilution method, MIC and MBC were also determined. The anti cancer effect of *A. catechu* bark and seed is determined by MTT assay and apoptotic gene expression were performed in SCC-25 cells. **Results:** The result reveals that content of Taxifolin in *A. catechu* bark extract was 17% w/w. *A. catechu* bark and seed is a promising candidate for management of oro dental infections. Semi-quantitative RT-PCR analysis for apoptotic-related gene expression revealed that *A. catechu* promoted SCC-25 apoptosis resulting in cell death. **Conclusion:** *a. catechu* ethanolic bark extract showed significant anticariogenic efficacy. The anti cancer study suggests that *A. catechu* bark and seed may be considered as a possible chemo preventive agent against oral cancer.

## Anti-inflammatory effect of fruit pulp extract of *Tamarindus indica* Linn on NO production and iNOS expression in LPS stimulated RAW 264.7 macrophages.

ePoster : EP-08  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Anitha Roy\*

Department of Pharmacology, Saveetha Dental College and Hospitals, SIMATS, Chennai, India

\*anitharoy2015@gmail.com

**Introduction:** Dysregulated production of cytokines and other pro-inflammatory mediators may lead to periodontal tissue destruction in periodontal disease. Though, iNOS expression may have beneficial effect in periodontitis, it has detrimental roles too. Excessive production of NO in the gingivomucosal tissue may contribute to periodontitis in man. The vasodilator effect of NO leads to redness of gingiva, vascular permeability and increasing effect of NO end up in the gingival swelling and the inhibitory effect of NO on platelet aggregation and adhesion increase the tendency of the soft tissue to bleed on gentle probing. Moreover, stimulating effect of NO on the activity of the osteoclasts can increase the alveolar bone resorption. Hence, the inhibition of iNOS in periodontitis reduces the degree of inflammation and is beneficial. Plant extracts may help in such conditions by interfering with the nitric oxide production. **Aim:** This study was carried out to evaluate the effect of the aqueous fruit pulp extract of *Tamarind indica* L on NO production and iNOS expression in LPS stimulated RAW 264.7 macrophages. **Materials and Methods:** The efficacy of tamarind extract on nitric oxide production was determined using in RAW macrophages. The presence of nitrite, a stable oxidized product of nitric oxide (NO), was determined in cell culture media using Griess reagent. The ability of Tamarind extract to inhibit, NO production at the level of transcription, RT - PCR was used to examine the expression of the iNOS gene in activated macrophages. RAW macrophages were treated with 17.5µg/ml, 35µg/ml and 70µg/ml of Tamarind extract with 1µg/ml of LPS and incubated for 24h. Statistical analysis was performed using Graph pad Prism 5.0 software version. Data obtained from the experiments were expressed as Mean ± SEM. LPS stimulated group showed 89.61% of NO. **Results:** Tamarind extract at its tested concentrations exhibited dose – dependent decrease in the production of NO ranging from 83.49 ± 0.42 % to 10.39 ± 0.80 % at concentrations ranging from 3.175 µg/ml to 150 µg/ml and the IC<sub>50</sub> value was found to be 35.69µg/ml. **Conclusion:** The study concludes the anti-inflammatory potential of tamarind pulp extract and thereby its possible indication in inflammatory conditions such as periodontitis associated with over production of Nitric oxide.



## Evaluation of anti bacterial activity of endodontic sealers in combination with cinnamon oil against *Enterococcus faecalis*.

ePoster : EP-9  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

R.V.Geetha\*

Department of Microbiology, Saveetha Dental College and Hospitals, SIMATS, Chennai, India

\*rvgeetha2015@gmail.com

**Introduction:** The main purpose of endodontic therapy is to clean and shape the root canal by means of instruments and chemical irrigation substances, in order to eliminate or reduce the amount of microorganisms, when the pulp is necrosed. After disinfection, the canal is sealed with a root filling, and one of main property of intra canal medicament is to have antimicrobial activity because bacteria may survive after intra-canal medication for several reasons. Today, there is a renewed interest in the uses of traditional plant sources as medicine. This revival of interest is mainly due to the widespread belief that 'green medicine' is safe and more dependable than the costly synthetic drugs. Hence, this study was done to evaluate the antibacterial activity of cinnamon oil with few intracanal medicaments and bring about its use in the field of dentistry. **Materials and methods:** The antimicrobial efficacy of commercially available root canal sealers namely zinc oxide eugenol and AH plus, were evaluated individually and also in combination with Cinnamon against *Enterococcus faecalis* which was isolated from necrotic pulps and endodontic lesions using the disc diffusion technique and the zone of inhibition was measured in mm diameter. **Results:** among the sealers tested zinc oxide eugenol with cinnamon oil showed the maximum effectiveness and the zone of inhibition was 23mm and for AH plus with cinnamon oil, the zone of inhibition was 19mm in diameter. **Conclusion:** It can be concluded that the addition of cinnamon to endodontic sealers increases the antibacterial activity. Cinnamon oil is a natural, nontoxic and affordable antibacterial substance. Thus it can be widely used for dental practice involving endodontic sealers.

## Healing actions potential of citrus limon in chronic oral ulcer of diabetes mellitus: the roles of HIF1 $\alpha$ and VEGF in wound healing

ePoster : EP-10  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Nurina Febriyanti Ayuningtyas<sup>1\*</sup>, Diah Savitri Ernawati<sup>1</sup>

<sup>1</sup>Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Surabaya 60132, Indonesia

\*nurina.ayoe@gmail.com

**Background:** In the oral diseases scope, ulcers are the most common disorder of the oral mucosa. Diabetic ulceration is a delayed wound healing and being one of the most serious complications related to diabetes. Microangiopathy can play an important role in the pathogenesis of tissue damage in diabetic ulceration. Moreover there is an increase in the use of therapeutic alternatives and natural compound in wound healing faster. D-limonene, one of the main constituents of *Citrus limon* essential oil are considered having antioxidant, hypoglycemic and antiinflammatory activities. However, the exact mechanism of this process remains unclear yet. **Purpose:** aim of this study was to determine the potential of limon as a medication of diabetic ulceration. **Review:** Neovasculogenesis is essential for wound healing. The process will be interrupted in diabetics, the consequences are delayed injury healing. Neovascularization occurs at the site of the wound by the process of angiogenesis and vasculogenesis. The etiology of most chronic angiogenic diseases such as diabetes complications includes the presence of pockets of hypoxic cells. Hypoxia is associated with the induction of hypoxia inducible factor 1 $\alpha$  (HIF-1 $\alpha$ ) activity and expression of HIF-1 $\alpha$  genes including vascular endothelium growth factor (VEGF). VEGF is mostly associated with angiogenesis and vascular permeability, but their rate decreases in the wound of diabetes. Terpenes, substance from citrus, activated HIF-1 and induce erythropoietin in CHO and HEP3B cell line. Treatment with *Citrus limon* increases VEGF-mediated blood vessel formation in the ulcer margin. Immunohistochemistry for VEGF shows increased angiogenesis in lesions border with rats given Citrus limon. **Conclusion:** *Citrus limon* is effective and safe to be medication treating diabetic ulcers, becoming promising compounds to be healing agents by activating *hypoxia inducible factor* (HIF) thus increasing VEGF and accelerating the wound healing process.



## Management of actinic prurigo cheilitis patient

ePoster : EP-11  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Saka Winias\*, Bagus Soebadi

Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, East Java, Indonesia

\*saka.winias@gmail.com

Actinic Prurigo (AP) is a photodermatosis can be affect the skin, conjunctiva and lips. It is caused by abnormal reaction to sunlight. AP has been suggested to be a hypersensitivity reaction to the presence of IgE production. In about 85% of the patients affected with AP, the lips are affected. Interestingly, in 56% of the patients with AP, the lips are only sites that are affected. The diagnosis of AP can be challenging, mainly when lip lesion are the only manifestation, which is not a classical clinical presentation. Purpose of this case report is report a management of Actinic Prurigo Cheilitis. A 38year-old lady complaining of a painful and bloody lesion on the lower lip of seven years evolution, which had worsened in the last month. The lower lip showed multiple ulcers covered with yellowish and blackish red crusts. The patient was prescribed peroral corticosteroids, a mixture regimen consist of antibiotics and steroidal anti-inflammatory which should be applied on the lesion 3-4 times daily. She had been advised to avoid sunlight exposure by wearing broad-brimmed hats or facial mask. The laboratory test showed increase in red blood cells count, hematocrit levels, and IgE serum levels. Complete remission of the lip lesion was observed after five weeks treatment. Conclusion of this report is to show that although some patients may not demonstrate the classical clinical presentation of AP, the associated anamnesis, clinical and supportive examinations are determinants for the correct diagnosis and successful treatment of this disease.

## Antifungal effects of *Eurycoma longifolia* jack (Tongkat Ali) root extract against oral *Candida albicans*

ePoster : EP-12  
Date : 15/08  
Session : 11<sup>30</sup>-12<sup>30</sup>

Ghasak Ghazi Faisal<sup>1\*</sup>, Mohd Hafiz Arzmi. Irani Alloha<sup>2</sup>, Nurul 'Ain Liyana Aziz<sup>2</sup>, Zurainie Abdllah<sup>3</sup>

<sup>1</sup>Lecturer, Fundamental Dental and Medical Sciences Department; <sup>2</sup>Students, Kuliyyah of Dentistry; <sup>3</sup>Lecturer, Department of Pediatric Dentistry, Orthodontic and Dental Public Health, Kuliyyah of Dentistry, International Islamic University Malaysia, Kuantan Campus, Pahang.

\*drghassak@yahoo.com

*Eurycoma longifolia* jack (E.L) is a herbal medicinal plant of South-East Asian origin, popularly recognized as 'Tongkat Ali.' The plant roots have been scientifically proven to have many biological effects. This study was done to determine the antifungal activities of E.L. root extract against *Candida albicans*. E.L root was extracted using soxhlet method. Disc diffusion assay was conducted using extract concentration of 200mg/ml. Nystatin was used as positive control. Minimum Inhibitory Concentration (MIC) was done to determine the lowest inhibitory concentration of the extract on the microorganism. E.L extract inhibited the growth of *Candida albicans* at a concentration of 200mg/ml with a zone of inhibition of  $16.0 \pm 3.0$ mm. The MIC of E.L extract against *Candida albicans* was 25mg/ml. The results from this study revealed the potential use of *Eurycoma longifolia* jack as an antifungal agent which can be used to produce new oral care products.





**International Conference on Oral Immunology and Oral Microbiology**

**Proceedings ICOIM 2018**

*Organized by:*



**UNIVERSITY  
OF MALAYA  
FACULTY OF DENTISTRY**

Malaysian Society of



**Oral MICROBIOLOGISTS  
& Oral IMMUNOLOGISTS**  
Reg. No.: PPM-015-14-17072018

ISBN: 978-967-2128-07-8

